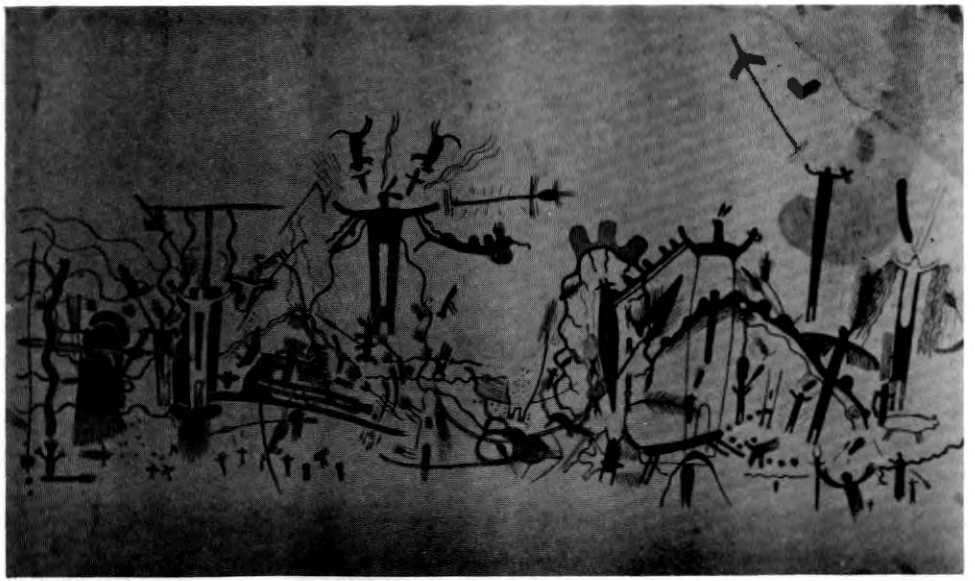

Typical Early Pecos River Focus Pictographs.
A Panel from 41VV180.

AN APPRAISAL OF THE MUSICOLOGICAL RESOURCES OF THE PECOS RIVER FOCUS

By

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THESIS

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P R E F A C E

The area about the mouth of the Pecos River in south central Val Verde County, and the surrounding region for a radius of approximately thirty miles, is in several respects one of the most unique archeological regions in North America. The desiccated rockshelters and caves preserve materials representing many thousands of years of human prehistory. For this reason alone the musicological significance is of exceptional value. However, in addition to these material remains, here exists one of the richest pictograph regions in the world, comparable only to the famous cave paintings of Europe. The cultural and historical value of obtaining as much information as is possible is certainly obvious in these times when the need for an understanding of mankind has assumed a critical and urgent posture in our lives.

The time available for future investigations within this area is limited, and this is significant because the proposed international Amistad Reservoir with its conservation pool will innundate many sites and will subject those that remain to vandalism. The contemplated flood pool will

destroy forever the archeological potential of a great many of the major sites, and quite possibly through intermittent submerging destroy artifacts from the dry deposits of other sites. A single, brief flooding is sufficient to destroy materials which have remained undisturbed for thousands of years. The reservoir is expected to be completed in early 1966, at which time the conservation pool will begin filling. Unless musicology joins in a concerted effort with archeology, a unique segment of human prehistory and musical knowledge will be lost beyond recovery.

Archeological research in this area has revealed that music was a part of the culture of a primitive race or races of people by uncovering ancient instruments from excavations of these dry caves and rockshelters. Vast panels of cave murals executed in both the monochromatic and polychromatic styles, in stylized and naturalistic forms, also provide an insight into the musical events of these people. A study of the Pecos River Focus musicological materials is not only important as a contribution to anthropology and musicology, but has far-reaching implications for knowledge in general.

This study of the musicological wealth of the Pecos River Focus represents a five-year involvement with

the archeology of the region, in which time the writer of this thesis has become intimately acquainted with the archeological resources of the area. In 1958, the writer participated in the initial phase of the reconnaisance of the area by The Inter Agency Archeological Salvage Program. During this survey of the area it became quite apparent that a study of the musicological materials should be made because much information of importance seemed to be in evidence. E. B. Jelks and other archeologists, as well as several musicologists, suggested urgency of salvaging as many of these materials as possible. This study therefore represents an attempt, before these materials are destroyed forever, to gain some insight into the music of the people who occupied this area in prehistoric times.

All of the suggestions of the scholars interested in this focus are incorporated into this paper, and certainly their contribution to the over-all effectiveness of this work is inestimable. During various stages of preparation, this manuscript was read by these individuals. A paper which involves the necessary procedure of cutting across two such scholarly fields as archeology and musicology is not without its problems.

A C K N O W L E D G M E N T S

This thesis would not have been possible without the encouragement and aid of a great many Texas archeologists, ranchers, scholars, and my wife, who assisted in the collection of data from the many caves of the area. Among those who contributed of their time, were inconvenienced, and perhaps imposed upon, the writer wishes to express his sincere appreciation to the following:

E. B. Jelks of the Texas Archeological Salvage Program; Dr. Jeremiah Epstein, Dr. E. Mott Davis, and Dr. T. N. Campbell of The University of Texas Department of Anthropology; Mr. W. E. McCarson of Comstock, Texas; Dr. Vicente T. Mendoza of the Museo Nacional of Mexico City; Dr. David Gebhard, former director of the Roswell Museum and Art Center at Roswell, New Mexico; Dr. Walter W. Taylor, formerly at the Instituto Nacional de Antropología Historia in Mexico City; Dr. Carl Shuster of Woodstock, New York; Dr. Nelson G. Patrick, Dr. Hans Draeger, and Dr. J. Frank Elsass of The University of Texas Department of Music; Miss Dee Ann Suhm, formerly of the Texas Memorial Museum; Mrs. Fred Humphreys of Comstock, and Chris Jelks of Austin, who consented to do the drawings.

Special thanks are due Dr. Francisco Curt Lange who was guest lecturer in primitive and Latin American music at The University of Texas during the summer session of 1960.

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INTRODUCTION

Musicological research has been primarily concerned with the music and music activities of known people within known cultures of the past, but the music activities of prehistoric man in the United States has been overlooked and in many instances completely ignored. Historical research leaves a wide gap in the known of the past and the prehistorical past the narrowing of which is necessary in obtaining a perspective of the history of music. Only recently, science has given the researcher many valuable tools which will assist the musicologist in making valid determinations with scientific accuracy that heretofore have been a matter of speculation at best.

Statement of the Problem

It was the purpose of this study to:

1. Collect information, through the means of personal investigation of a considerable portion of the archeological sites of the Pecos River Focus.

2. Examine the literature related to the archeological and anthropological investigations within the Pecos River Focus.
3. Study the musical instruments recovered in order to determine the cultural affinities and affiliations, if any, of the Pecos River Focus.
4. Examine the pictographs and petrogliphs of the area in order to determine what, if any, the implications these may have concerning the musical development of these primitive people.

Importance of the Study

As previously stated in the preface, the many hundreds of caves and rockshelters of the Amistad Basin with their rich accumulation of cultural materials will be lost beyond recovery when the joint international project, known as the Amistad Dam and Reservoir, is completed. Such a significant segment of musical prehistory must not pass unacknowledged by musicological research.

The meager efforts of researchers in this area have been limited because of the financial demands of field research which are considerable in the light of ever increasing labor costs. However, the recorded investigations have

produced findings that justify the continuation of field work and plead the assistance of comparative or ethnomusicological studies. In the past the scientific acquisition of information pertaining to prehistorical endeavors in music has been left to the archeologist and the anthropologist, but a new concept of the role of musicology especially in the United States is required if music findings are to be explored in greater depth.

Various relationships of musicological materials, such as instruments and pictographs, help to establish the extent of musical activity in any cultural component. Also, these same materials can point to other cultures and provide the researcher with an insight into cultural affinity and affiliation with other areas of prehistory. Most important is the effect of these materials upon later groups of aborigines that were known, from European contact, in the early explorations and settling of this country.

Method of Procedure

Extensive investigations were made in the Pecos Focus over a five year period. This included the following methods of investigation:

1. Visitations of as many sites as possible within the area of the Amistad Basin and the adjacent regions in both the United States and Mexico.
2. Exploratory excavations at ten sites.
3. Scientifically controlled excavational activities at five sites.

In addition to the field activities, visitations were made to Witte Memorial Museum in San Antonio, Texas; Texas Memorial Museum in Austin, Texas; Bishops Palace Museum in Monterrey, Mexico; and the Roswell Museum and Art Center at Roswell, New Mexico. These visits were carried out for the purpose of studying musicological materials not only from the Pecos River Focus, but materials from other areas of archeological endeavor. Also, where possible, interviews were held with the resident archeologists or administrative personnel of the various museums for the purpose of learning the recovery techniques utilized by the archeologists. Every effort was made to determine the provenience of each instrument that was studied.

The inspection of various private and commercial artifactual collections throughout Texas, Northern Mexico, and Southern Colorado was carried out during this five year period for the purpose of studying and collecting information about other areas.

Periodic visitations by the staff officers of the Texas Archeological Salvage Program to the Amistad area, and trips for consultation to the Balcones Research Center in Austin, Texas, served the function of acquiring information pertinent to work being carried on over the entire state. These interviews and resulting information were of prime importance to the study.

Correspondence with authorities such as Vicente T. Mendoza of Mexico City resulted in the acquisition of various information pertinent to the distribution of musicological materials throughout Latin America and the use of similar materials in prehistoric Europe. Also, the study of previous published and unpublished reports of field work in the Pecos River Focus was performed during the five years of research. Musicological and ethnomusicological literature were studied for the purpose of gaining information about the various early man instruments. This literature is listed in the bibliography at the close of this paper.

Many hours were spent at The University of Texas, Department of Anthropology Museum, and the salvage laboratory on that campus for the purpose of studying instruments recovered from various excavations within the Pecos River Focus.

All of the outstanding pictograph sites recorded by the survey of 1958 were revisited for the purpose of studying the panels. A number of the murals confirmed the writer's theory that obviously dance and music were a part of the ceremonialistic life of these prehistoric people. In addition to the sites which were recorded by the survey of 1958 other murals were discovered in the process of investigation.

Specifically, the pictograph sites studied are the following:

1. Fate Bell Rockshelter (VV74). Located in Seminole Canyon.
2. VV39. Located near the Devils River in Satan Canyon.
3. VV73. Situated adjacent to Fate Bell Rockshelter in Seminole Canyon.
4. VV40. Adjacent to VV39 in Satan Canyon.
5. Panther Cave (VV83). Located at the mouth of Seminole Canyon near the Rio Grande.
6. Flint Cave (VV75). In Seminole Canyon below Fate Bell Shelter.
7. VV90. Overlooking the Pecos River from the west bank of the canyon near the U.S. highway 90 bridge.

8. Gillis Ranch Cave. Located in a tributary canyon of the Devils River. (No survey number was assigned to this site which was overlooked in the field reconnaisance by the survey party of 1958.

9. Eagle Cave (VV167). This cave is located in Eagle Canyon near the Langtry Community.

10. Parida Cave (VV187). Below the mouth of the Pecos River on the Rio Grande.

11. VV134. Overlooking the Pecos River from the west near the Southern Pacific railroad bridge.

Definition of Terms

Focus: The term focus is used by archeologists to direct attention upon a particular area of investigation.

Aspect: The term aspect refers to a larger area of attention in archeology which may contain several foci.

Site: A specific location on which primitive man left behind evidence of occupation and/or signs of his having once been at this particular location.

Study Area: Specifically the Pecos River Focus of Texas Archeology. However, this includes the area of

Val Verde County, Texas, which is bounded by the Pecos, Devils, and Rio Grande rivers, the adjacent area south of the Rio Grande River in Coahuila, Mexico; and the region along the Rio Grande River near Langtry, Texas, west of the Pecos River.

Archeology: The study of man's past life and activities as shown through the relics and monuments he has left behind him; also, recently the study of the means and techniques of recovering these cultural remains.

Anthropology: The study of man in general. It is more precisely concerned with the evolutionary development of man.

Cultural Affinity: A culture which is related or akin to another culture by having in common certain cultural traits.

Ethnomusicology: The study that uses musical means of studying races, their origin, distribution, relations and peculiarities.

Monochromatic: Refers to paintings in which only one color is employed. It is typical of later periods of primitive art.

Polychromatic: A type of painting in which two or more colors are employed. This type of painting is

characteristic of early paintings with which the Pecos River Focus Style is identified.

Cultural Affiliation: A mixing with, or contact with another culture. There may or may not be cultural affinity between the two.

Problematical: Uncertain identification.

Survey Number: The system employed by the survey party of 1958, and which is incorporated in this paper for numbering the various sites involves two designations; first, the prefix VV, which designates the county Val Verde, and second, the following numbers which designate the specific site. In the national system, of which this system is a part, each county prefix is again prefixed by one, or two, digits which designates the state. The designation for Texas is 41. Thus Fate Bell Shelter would be completely identified by 41VV74. For purposes of this paper, however, the state designation is omitted. When a particular site has a name given to it by an archeologist or a rancher this name is included with the survey number.

Excavational Techniques and Methods Utilized

The dry caves or rockshelters of the Trans-Pecos region and specifically those of the study area present numerous problems to the archeologist and ethnomusicologist. First, there is the problem of breathing under the cloud of dust which invariably envelopes all of the workers. Lehmer[1] discusses this problem in his review of Texas Archeology in the Trans-Pecos:

> Excavation within the rock shelters themselves presents a number of special problems. The matrix of the cave fill is usually an extremely fine dust, a dry powdery substance which boils up in clouds during excavation. Extreme caution must be exercised to avoid prolonged breathing of the dust, and industrial respirators should be worn by all members of the field party working in the cave for more than a few minutes. The dust is also very irritating to the eyes, and they should be bathed at least twice a day with boric acid.

Secondly, there is the problem of containing the walls of the excavation which are composed of the fine powdery dust and usually an abundant deposition of organic material and large rocks.

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[1]Donald J. Lehmer, "A Review of Trans-Pecos Texas Archeology," Bulletin of the Texas Archeological Society (Austin, Texas), 29:137 (1958).

> The fact that the overhang keeps moisture out of the cave usually results in the presence of quantities of perishable materials in the fill. This, plus the powdery nature of the matrix, makes excavation slow and also makes it very difficult to keep any sort of vertical face on the excavation itself. In addition to the vegetable fibers, the presence of large rocks which have fallen from the cave roof also interferes with the neat geometric squares which are dear to the heart of most archeologists.[2]

There are a number of techniques employed by archeologists, both professional and amateur.[3] In the study area the methods used have been many and varied although inadequate gross techniques have predominated, especially during the early 1930's.

Archeological field techniques have advanced as have most other scientific and technological procedures during the past twenty years. Today the archeologist has become as skilled as the surgeon in carefully removing artifacts and other materials from a midden in order to preserve a stratigraphy that is not only important vertically but is engineered for horizontal control as well. It may be said

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[2]Ibid.

[3]Herbert Cecil Taylor, "The Archeology of the Area about the Mouth of the Pecos," unpublished Master's thesis, The University of Texas, Austin, 1949, p. 83.

Figure I. Black, Hand-Screening in Eagle Cave.

that the modern archeologist is often more concerned with the means of removing artifacts than with the artifacts themselves.

According to Taylor,[4] the specific techniques employed by the conscientious researcher usually conform to or are modifications of the following methods:

1. To dig a trench, pit, or an entire midden simply to obtain the artifacts without regard to their vertical or horizontal position in the debris.

2. To dig a midden, or a portion of it, in layers, thus being able to determine the depth (or vertical position) of the artifact but without a sure check on the relative horizontal position of the object.

3. To lay the site off in trenches and then in grids, thus achieving a given number of squares, each square to be excavated separately in layers. One has then achieved three dimensional controls and can not only state the relative vertical position of an artifact but also the relative horizontal placement.

As Lehmer[5] points out, each cave is different and methods have to be adapted to the particular site in which the worker is involved.

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[4] Ibid., p. 83.

[5] Lehmer, op. cit., p. 137.

> Often it is advisable to establish a number of "profile-lines" across the cave, and remove the deposits between them a layer at a time. As each level is worked back to one of these lines, it is faced up as well as possible along the line. A scaled drawing should then be made of the profile at that point, and the excavation then carried back to the next line. When the entire layer has been taken out in this fashion, a second can be removed in the same way. As this is done, the profile drawings should be extended down another step as each profile line is reached.

In the study area the only sites of great musicological significance are the caves and rockshelters; although stratified alluvial terrace sites, buried terrace sites, and kitchen middens exist in abundance, they would be treated excavationally much in the same way.

In addition to the trenching of a site, the material which is removed must then be passed through a wire screen in order to obtain the artifacts. The material to be screened is removed to the entrance of the cave in wheelbarrows and poured carefully upon the screen to prevent spilling. Ramps are usually built at the mouth of the cave to accomodate the wheelbarrows. The choice of screen used is largely a matter of individual preference, however, hail screen of one quarter inch mesh or half inch mesh is usually employed. Some archeologists have used fly screen in the screening of certain deposits in order to retain small

seeds and other materials that might otherwise escape through larger mesh. If the material that is to be screened is from the rich upper vegetal strata a larger mesh is desirable although the control is lessened because of the possibility of losing small artifacts.

The debris material is removed by shovels from the trenches although frequently the use of a digging trowel becomes necessary in leveling the floor of a square or for checking for features within a given level. A whisk broom, leveling instrument, measuring tape, string, radius rod, and a transit instrument are also indispensible tools for the excavator.

Besides the responsibilities of the digging, the responsibility of keeping accurate field data is of the utmost importance. In most instances this responsibility is left to the archeologist in charge of the excavation or to a very competent field foreman.

The degree of excavation control, both vertically and horizontally, contributes to the over-all accuracy of the excavation. In the dry shelters of the Pecos River Focus the vertical control of six inches is usually considered adequate although it sometimes becomes necessary to extend this to one inch control or even less, depending on

the nature of the debris material with which the excavator is concerned. After profile lines are established, however, the vertical control may be advanced to twelve inches making it possible to move much more debris in a shorter period of time.

Scientifically Controlled Excavations

During the excavation of Javelina Cave(VV109) in the summer of 1959, the grid system was employed.[6] The School Cave(VV68) was partially excavated using the layer system although the site had been previously engineered for the grid technique by John Allen Graham.[7] This site produced a fine musical specimen which will be discussed in a later chapter.

Coontail-Spin Cave(VV82) is a shelter which is located in a rather inaccessible wall of the north face of

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[6]This excavation was under the direct supervision of Dr. Jeremiah Epstein of The University of Texas with field data compiled by the writer. A full report of this excavation is now in preparation and will be delivered to the Texas Archeological Society in the near future.

[7]Field archeologist of The University of Texas who consented to assist the Val Verde County Archeological Society in the initial excavational procedures at this site.

the Rio Grande Canyon. It faces Mexico to the south and commands an excellent view of all the surrounding terrain. This cave was tested periodically during the winter of 1960 and in the summer of 1961. The layer system was employed in only two test trenches which produced an amazing quantity of nonlithic material as well as three dart points which resemble the Plainview type point.[8] This site also produced a fragment of a gourd rattle.

The Fate Bell Shelter(VV74) which is designated the diagnostic type shelter of the Pecos River Focus was worked periodically during the years 1958-1961. The grid system and layer system were both used at this site with the researcher establishing profile lines when possible. The exceptional depth of these deposits and the abundance of vegetal materials made vertical control difficult and even hazardous on occasion. This site produced a number of musical instruments: rattles, ribbon reeds, and several tubes of cane which are problematical flutes. The Pearce

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[8]The Plainview dart point is found in association with extinct species of bison at the Plainview Site, and is considered to have an estimated age extending from 7000 B.C. to 4000 B.C. in Texas.

and Jackson excavation[9] of 1932 also produced musical instruments from this site.

Another site that was tested recently is the Gillis Ranch Cave near Comstock. This site does not have a survey number assigned to it and was not acknowledged in the field survey of 1958. This is a large cave with an enormous deposit and an extensive talus slope at its mouth. Although the site has been "potted"[10] the general condition of the cave is excellent. Much area remains to be excavated. The writer tested several "pot holes" and the general appearance of the profiles of the two upper zones indicates considerable dryness.

Exploratory Excavations

Although only ten sites are listed by the researcher as having had exploratory excavations made within

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[9]An early expedition by The University of Texas under the direction of the late Dr. Pearce with A. T. Jackson serving as field foreman. A complete list of artifacts from this excavation may be found in Table IV, Chapter II, of this thesis.

[10]This is a term in common usage among Texas Archeologists that implies that the site or location in consideration has been disturbed by vandals in search of potsheards or other archeological materials.

them, there are many more sites that were tested for exploratory purposes. However, for purposes of this paper only those sites which are considered important to this study and which have yielded musicological materials are considered. These are the following:

1. Flint Cave(VV75). This is a large cave that has been badly disturbed by looters in search of dart and arrow points. The deposits are quite dry, however, and several pot holes in the midden reveal considerable desiccation prevailing to an estimated depth of eight or nine feet. A ribbon reed was recovered on one visit to this site.

2. Unnamed Cave, Coahuila, Mexico. This cave was discovered by the writer while on a fishing expedition on the Rio Grande River. Taking shelter in the cave because of an impending storm a test hole was begun at the back wall of the small cave. This cave was not numbered by the Mexican survey party of 1958. The shelter contained dim pictographs and was quite impressive from the amount of fiber and dart points that were picked up on the surface. One ribbon reed was found on the surface of this cave.

3. Panther Cave(VV83). Three exploratory test holes were attempted in the summer of 1959. Due to excessive roof spalling and the compressed nature of the floor

in this cave it was impossible to penetrate the midden except near the underside of several large boulders which are on the cave floor. No instruments were recovered from this site although it has been revisited many times in order to study the magnificent paintings which are present in great profusion.

4. Unnamed Cave on Roger Gillis Ranch (this cave is not to be confused with a very large site on the Gillis Ranch which is also unnamed and has yielded one musical instrument). The cave is quite small and contains a shallow deposit although the talus slope at the mouth is extensive. Several test holes were measured to determine the depth of the deposits but no artifacts were recovered.

5. Parida Cave(VV187). This is one of the largest sites within the study area and contains a number of fine cave murals which were studied in conjunction with the exploratory test trench that was a simple enlargement of a previous "pot hole."

6. Fate Bell Shelter(VV74). In addition to the controlled activities of this site a number of exploratory trenches were begun in the area adjacent to the main trench excavated in 1932 by an expedition of The University of Texas. Several musical artifacts were found in the debris

of the upper stratigraphy including a problematical strung "rattle belt" and a cache of ribbon reeds.

7. Unnamed Cave on Bill Lausen Ranch. This is a cave which may be classified a cave of intermediate size located on Lewis Canyon near the central portion of the Bill Lausen Ranch. Despite the exceptionally damp condition of the material at the mouth orifice of this cave, numerous recesses along the back wall of the cave are quite dry. A musical instrument was recovered here on the surface although the test trench begun by the writer and W. E. McCarson, Jr. of Comstock produced only a few dart points and other lithic artifactual remains.

8. H. T. Miers Cave. (This cave is not to be confused with the famous sink hole located on the same ranch.) This is a large cave which was tested by various members of the Val Verde County Archeological Society in 1960. The test trenches of the society, which were dug under the supervision and with the permission of Ivan Bain of Del Rio, Texas, produced only a few dart points in a deposit which appeared to be disturbed. A five foot square maintained by the writer indicated secondary deposition, although the deposit was quite dry.

9. VV100. This is an extremely difficult cave to reach because of the large boulders which must be climbed at the canyon floor before reaching the cave. Periodic explorations at this site have failed to produce an artifact although the cave was unquestionably occupied by prehistoric people. This is a huge cave with an opening of 200 feet at the mouth and has a depth of 100 feet. The deposits appear to be quite deep but are damp over much of the cave.

10. School Cave(VV68). Numerous test holes were placed in the midden at this site following a controlled excavation which produced a splendid musical scraper and other important archeological materials. It became necessary to abandon this site and discontinue further investigations at the request of the rancher who owned the cave.

C H A P T E R I I

REVIEW OF THE LITERATURE

The Location and Present Cultural Environment

The study area is located approximately twelve miles above the city of Del Rio, Val Verde County, Texas on the Rio Grande River. It extends westward to include the south central portion of Val Verde County as well as the adjacent area south of the Rio Grande in Coahuila, Mexico.

The area is sparsely populated on both sides of the Rio Grande.[11] On the American side the population is concentrated in the five small communities of Juno, Pandale, Langtry, and Comstock, of which Comstock is the largest and most centrally located.[12] The communities are rather isolated in view of the distances separating them from each other as well as from the metropolitan city of Del Rio. The combined populations are only 515 people located

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[11] Texas Almanac, 1961-1962 (Dallas, Texas: A. H. Belo Corporation, 1961), pp. 644-645.

[12] Ibid., p. 645

in the five communities in a county that has a total land area of 3,242 square miles and over-all population density of 5.1 people per square mile.[13] Although Val Verde County is the sixth largest county of size in the state with a total population of 24,461, it must be remembered that this does not express the true dispersion of population. The city of Del Rio in the southeastern corner of the county represents 85.4 per cent of the entire population; therefore, the study area has a population density much less than the 5.1 people per square mile as previously mentioned.[14] Because of the close proximity of the study area to the Mexican border it is quite understandable that the largest segment of population would be Latin American.[15]

The only highways of any consequence serving the area are United States Highway 90 and State Highway 163. Highway 90 follows generally the contour of the Rio Grande River through the area in a southeast to northwest direction Highway 163 connects Comstock with Juno forty miles to the north. There is a partially surfaced road maintained

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[13] Ibid.

[14] Texas Almanac, 1958-1959 (Dallas. Texas: A. H. Belo Corporation, 1958), p. 640.

[15] Ibid.

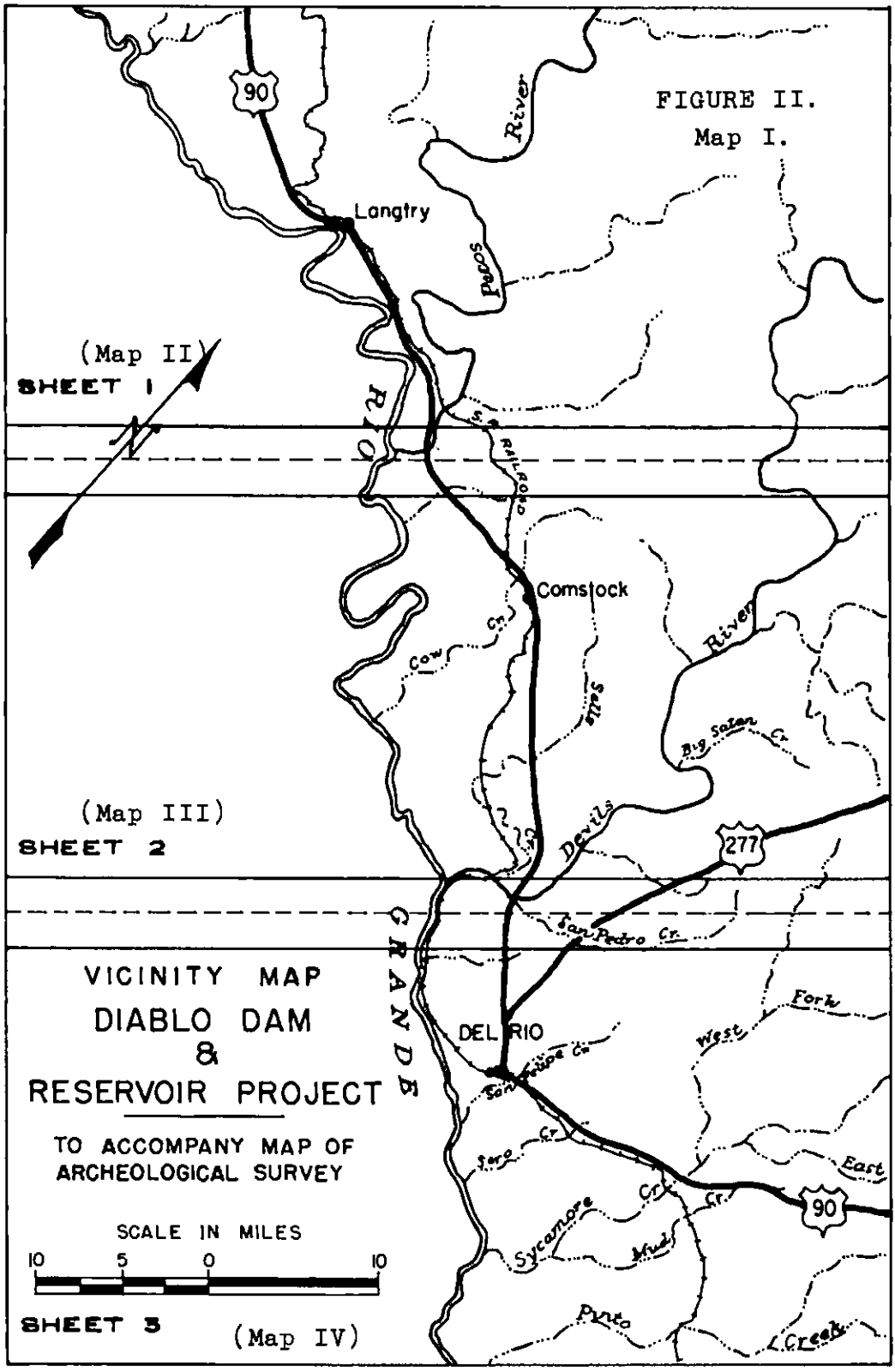
FIGURE II.
Map I.
90
Langtry
Pecos
River
(Map II)
SHEET 1
RIO
GRANDE
Comstock
Cow Cr.
Devils
River
Big Satan Cr.
277
(Map III)
SHEET 2
San Pedro Cr.
DEL RIO
San Felipe Cr.
West Fork
Toro Cr.
East
Sycamore Cr.
Mud Cr.
90
Pinto
L. Creek
VICINITY MAP
DIABLO DAM
&
RESERVOIR PROJECT
TO ACCOMPANY MAP OF
ARCHEOLOGICAL SURVEY
SCALE IN MILES
10 5 0 10
SHEET 3
(Map IV)

by the county connecting Comstock with Pandale, and an unsurfaced road connecting Langtry with Pandale.[16]

The communications media of telephone, television, daily newspaper, and radio leave much to be desired in an age in which man has achieved international audio-visual communications. Until April of 1962 the telephone system of the General Telephone Company of Del Rio was capable of providing adequate service to only Comstock and Langtry. The area is considered beyond the "fringe" of satisfactory television reception because of its great distance from the nearest television station. Radio contact with station KDLK in Del Rio is usually sustained only during the daylight hours before the more powerful Mexican stations begin transmission which frequently obscures reception from the weaker American stations. Newspapers available in the area are the San Antonio Express and News, and the San Angelo Standard Times. The Del Rio News Herald is received one day late due to poor bus and mail scheduling west from that city.

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[16] Ibid.

The economy of the area is based primarily on sheep and goat ranching, Val Verde County ranking first in Texas as a producer of wool. Del Rio is a leading market in Texas for wool and mohair.[17]

The contemplated International Reservoir which will be located within the study area is considered to have an economic impact of sizeable proportion on the entire county. Proposed by the water treaty of 1944 between the United States and Mexico and originally known as the Diablo Dam and Reservoir Project, this reservoir will impound 5,977,000 acre feet of water. It is estimated that the reservoir will attain a maximum length of 75 miles on the Rio Grande, 18 to 20 miles on the Pecos, and 30 miles on the Devils River. The surface of the conservation pool will reach 1,117.0 feet elevation and the flood pool will reach an elevation of 1,140.4 feet. This reservoir project, which has been renamed the Amistad Dam and Reservoir Project, will rank in size with some of the largest artificial impoundments in the state.[18]

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[17] Loc. cit., p. 639.

[18] Appraisal of the Archeological Resources of Diablo Reservoir Val Verde County, Texas, Report of the Archeological Salvage Program Field Office (National Parks Service, U.S.Department of the Interior), Austin, 1958, p. 11.

The ranches of the area are quite large in comparison with the average ranch acreage of the state. As a consequence of their size these ranches demand a considerable force of ranch labor which is largely composed of Mexican nationals. The average acreage of these large ranches within the county is 9,750.7 acres.[19]

The average academic level attained by the inhabitants of the county is the 6.3 grade level.[20] In view of the cultural differential of the city of Del Rio with the study area, it is obvious that the average academic level of attainment in the study area is somewhat lower than the 6.3 level. However, public schools are located in four of the five previously mentioned small communities. The only school offering education above the eighth grade is at Comstock. The Langtry school is a small rural school in a common school district system and the Juno and Pandale schools are one teacher rural units under the direct supervision of the county school superintendent.[21]

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[19] Texas Almanac, 1958-1959, p. 245.

[20] Ibid., p. 109.

[21] Public School Directory, 1961-1962, Bulletin 614, Texas Education Agency, Austin, 1961, p. 140.

South of the Rio Grande in Coahuila, Mexico, the study area embraces perhaps one of the most remote regions in all of North America.[22] Known as the "fronteria" of the Sierra Madre Oriental, the region is geographically outlined by the Sierranias del Burro mountain range to the south and the Rio Grande River to the north. Specifically this includes the area between the Arroyo de los Jaboncillos below the mouth of the Devil's River and the Arroya de la Parida below the mouth of the Pecos River. Within this region there are only a few isolated villages connected to each other by Burro trails. These villages, often representing enormous land holdings,[23] are referred to as "Ranchos" by the Mexican people.[24]

Although the population of the Mexican segment of the study area is considerably less than that of the

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[22]Encyclopaedia Britannica (Chicago: Encyclopaedia Britannica, Inc., 1962), XV, 381.

[23]The Diego "Rancho" which borders the Rio Grande River in the study area is said to be in excess of one hundred thousand acres. Also, the Juan Quiros Ranch in the lower portion of the Amistad Basin is quite large.

[24]This is a common term in general usage by the Mexican people of northern Coahuila according to General Jaime Quinones of Cuidad Acuna, Military Commander of the Coahuila district. Personal interview, November, 1960.

American portion, the actual population has not been determined. The population of the State of Coahuila was reported in 1950 as 720,619 with a population density of 12.4 people per square mile.[25] This population and density like the American segment does not express the correct distribution of people because of the absorption of a sizeable portion of the people into the large cities to the south and east of the state.

The economy of this Mexican region of the study area is in marked contrast to the economy of the American segment. Although there is a conspicuous absence of sheep and Spanish goats are present in small numbers, cattle apparently are the predominant livestock element.[26]

The Physical Environment

Because of the effects of weather, topography, and other environmental influences on the archeology of the region, it is necessary that a discussion of these

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[25] Encyclopaedia Britannica, loc. cit.

[26] The information regarding the economic and livestock differences between the two regional segments of the study area were determined after an interview with General Jaime Quinones in November, 1960.

important factors be considered in this report. These conditions determine the quality and state of preservation of many of the musicological materials.

The study area is topographically defined as a hilly region with elevations of 900 to 2,200 feet, dissected by numerous steep walled canyons of which the Pecos River, Rio Grande River, and Devils River canyons are outstanding.[27] In 1853 Lieutenant Michler who was conducting a survey for the United States Boundary Commission described the region in a rather dramatic way:[28]

> The country is cut up by immense chasms, closed in by steep cliffs, unseen until standing upon the very edge of their fearful depths . . .

In Mexico to the south of the Rio Grande River the topography becomes somewhat more varied. The arroyas approaching the foothills of the Sierranias del Burro Mountains are not as deep nor have as finely chiseled physical features as those on the American side of the river.

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[27]Appraisal of the Archeological Resources of Diablo Reservoir, Val Verde County, Texas, p. 3.

[28]Major Ralph Emory, Report of the United States Boundary Commission, Washington, D.C., 1856, pp. 53-57.

Also, the maximum elevation is somewhat higher than that on the American side.

The climate of the region is semiarid.[29] The average annual rainfall, based on a forty-seven year record at the nearest weather station at Del Rio, Texas, is 15.58 inches.[30] The precipitation in the foothills of the Sierranias del Burro Mountain range is somewhat greater due to the effect of slope which promotes the orographic type rainfall periodically. The period of heaviest rainfall in the study area occurs during the late spring and early fall months. Also, the ground fogs and mists are frequently experienced during the winter months.[31] Temperature variance within the area is from 60° F. in January to 85° F. in July with an extreme minimum of 11° F. and an extreme maximum of 111° F. The extreme minimum temperature has been lower in the study area because of the elevational differential between the Del Rio recording station and

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[29] Texas Almanac, 1958-1959, p. 153.

[30] Ibid., p. 166.

[31] David Gebhard, Prehistoric Paintings of the Diablo Region of Western Texas, Publication No. 3, Roswell, New Mexico; Roswell Museum and Art Center, p. 6.

the study area proper. The wind velocity average is 10.7 miles per hour.[32]

Water Resources

Water in the region is exceptionally scarce. With the exception of Goodenough Springs[33] the only reliable sources of water are the three main rivers, the Pecos, the Rio Grande, and Devils River. Only during periods of rainfall will water be found in the tributary canyons, although springs of a semipermanent nature provide water for some of the bedrock holes. Evaporation is, however, an important factor in the stability of water surface levels throughout the entire area and renders a large amount of the rainfall valueless.[34]

> Rate of open-surface evaporation varies greatly at any given point, according to various factors--temperature of the atmosphere, humidity, wind speed across surface of water and height above or below surrounding surface of the earth. For

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[32]Appraisal of the Archeological Resources of Diablo Reservoir, Val Verde County, Texas, p. 4.

[33]This spring is considered to be the second largest flowing spring in Texas.

[34]Texas Almanac, 1958-1959, p. 173.

> many reasons it is difficult to determine rate of evaporation from the surface of a lake. Evaporation pans of several kinds have been devised by scientists. From these evaporation pans it has been determined that under normal conditions evaporation from an open surface will amount to about 45 inches annually in the humid southeastern parts of the state, and to more than 80 inches in the Trans-Pecos. (This is according to experiments with the BPI type pans. Experiments with some other types, placed at different distances above the surface of the earth gave higher average evaporation rates--more than 100 inches in the Trans-Pecos.)

The dam of the proposed Amistad Reservoir that will be located at the confluence of the Devils River with the Rio Grande River will greatly increase the total water available in the area at the present time.

The Flora[35]

Present in the study area are plants and timber which are characteristic of the Rio Grande Plain to the southeast, the Edwards Plateau to the northeast, and the Trans-Pecos to the west. Specifically the common flora is comprised of sotol, Yucca, Lechuguilla, Huisatche, Ocotillo, Ceniza, Catclaw, Nolina, Cresote Brush, River cane

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[35]Appraisal of the Archeological Resources of Diablo Reservoir, Val Verde County, Texas, p. 4.

TABLE I

FLORA OF THE STUDY AREA

Common Name	Botanical Classification	Remarks
TREES		
Willow	Salix amygdaloides anderss Salix taxifolia H.B.K.	
Black Oak	Quercus velntina la marck	
Red Bud	Cercis reniformis englm	
Mountain Laurel	Kalmia latifolia L.	
Huisache	Acacia vernicosa standl	
Mesquite	Prosopis Juliflora (Swartz) D.C.	
Live Oak	Quercus Virginiana mill	
Shin Oak	Quercus mohriana rybd	
Black Walnut	Juglans nigra L.	
Pecan	Hicoria pecan britton	
Cottenwood	Populus deltoides virginiana sudw.	
Elm	Ulmus crassifolia nutt	
Cedar	Juniperus mexicana spreng	
SHRUBS, PLANTS AND VINES		
Ironwood	Ostrya virginiana (Miller) koch	
Huajillo	Pithecololrium brevifolium Acacia berlandier	
Persimmon	Diospyros virginiana	
Wild China	Sapindus drummondii hook and arn	Referred to locally as soap-weed or latherweed

Table I - continued

Common Name	Botanical Classification	Remarks
Century Plant	Agave americana	Referred to as the Maguey by the Mexican people of the area. Rather rare.
Sotol	Dasylirion texanum scheele	A major vegetational cover plant.
Yucca	Yucca boccata torr Yucca thompsonian trel Yucca treculeana Yucca constricta buckl Yucca elata engelm Yucca torreyi shafer	
Lechuguilla	Agave lechuguilla torr	
Ocotillo	Fouquieria splendens engelm	
Cenizo	Pentstemon baccharifolius hook	
Catclaw	Acacia greggii A. grey	
Guayacan	Porliera angustifolia	
River Cane	Arundinaria gigantea (walt) chapm Arundo donax	
Cresote Bush	Larrea tridentata (D.C.) coville	
GRASSES		
Bear Grass	Nolina microcarpa	
Sacahuisti	Nolina texana Watson	
Bluestem	Agropyron smithii Rydb.	
Buffalo	Buchloe dactyloides (Nutt) Engelm	
Curly Mesquite	Hilaria belangeri (Steud.) Nash	

Table I - continued

Common Name	Botanical Classification	Remarks
FLOWERS		
Bitterweed	Helenium microcephalum (D.C.)	
Dandelion	Penstemon taraxacum	
Star Thistle	Penstemon centaurea	
Sunflower	Penstemon helianthus	
Indian Paint Brush	Castilleja lindheimeri	
Wild Verbena	Verbena bipinnatifida	
Buttercup	Ranunculus macranthus	
Bluebonnet	Lupinus texensis	

Adapted from:

Robert A. Vines, Trees Shrubs and Woody Vines of the Southwest (Austin: University of Texas Press, 1960).

Ellen D. Schulz, Texas Wild Flowers (Chicago: Laidlow Brothers Pub., 1928).

William L. Bray, "Vegetation of the Sotol Country in Texas," Bulletin of The University of Texas, No. 60, Scientific Series No. 6, (Austin, 1905).

_____, Soils and Men, Yearbook of Agriculture, U.S. Dept. of Agriculture, (Washington, D.C., 1938).

and numerous varieties of Cacti. Juniper is virtually nonexistant in the reservoir area but does occur in the northern part of the county.

The Fauna[36]

The common fauna of the area includes peccary (javelina), white tail deer, coyote, bobcat, beaver, jackrabbit, cottontail rabbit, raccoon, skunk, ringtail, rock squirrel, and fox. The grey wolf, black bear, and cougar are rarely seen although they were once numerous. The jaguar (Felis onca True) is known to have been present in the region but is now extremely rare in Texas.[37] In Mexico the jaguar becomes more numerous towards the interior away from the Rio Grande River to the north.

Along the Rio Grande, and confined to a very limited range, a variety of whitetail deer, known as the Del Carmen deer, is found in the study area, although the

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[36] Ibid., p. 4.

[37] In recent years this animal has become somewhat more numerous in the Big Bend region of Texas. In 1959 the writer was in company with a party from Austin, Texas, at which time two of the members of the party sighted an animal on the Mexican side of the Rio Grande River that could possibly have been a jaguar.

species is not abundant. This animal attains a greater physical stature than the common deer of the area and is much sought after by big game hunters during the regular hunting season. The animal is apparently a hybrid with a successful mutation having been effected between the whitetail deer and the western mule deer. The antlers of the male of the species are bifurcated and the general appearance of the animal is much like that of the mule deer although the characteristic white tail of the whitetail deer is diagnostic.

The Soils

Thin limestone derived soils characterize the uplands while alluvial soils constitute the soils along the rivers. The soils of the uplands which are derived from cretaceous limestone of the comanche series are dark in color, high in organic matter, and are productive.[38]

> However, the prevailing steep slopes permit rapid runoff and erosion. The soils are generally thin and stony. Incomplete soil conservation surveys show that 10 per cent of the soils are deep, 20 per cent are shallow, 45 per cent are very

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[38] Texas Almanac, 1958-1959, p. 144.

TABLE II

LAND VERTEBRATES OF THE STUDY AREA

Common Name	Zoological Classification	Remarks
AMPHIBIANS		
Leopard Frog	Rana pipiens	
Arizona Tree Frog	Hyla arenicolor	
Couch's Spadefoot	Scaphious couchii	
Spadefoot Toad	Bufo compactilis	
Yellow Mud Turtle	Conosternum flavescens	
Henry's Mud Turtle	Cinosternum henrici	
Texas Terrapin	Chrysemys texana	
Large Box Tortoise	Terrapene major	
REPTILES		
Banded Gecho	Coleonyx brevis	
Bailey's Ring-necked Lizard	Crotaphytus Colaria baileyi	
Leopard Lizard	Crotaphytus Wislizenii	
Texas Zebra-tailed Lizard	Holbrookia texana	
Spotted Lizard	Holbrookia maculata	
Long-tailed Spotted Lizard	Holbrookia proquina	
Brown shouldered Lizard	Uta stansbunana	

Table II - continued

Common Name	Zoological Classification	Remarks
Ornate Lizard	Uta Ornata	
Couch's Lizard	Sceloporus couchi	
Poinsett's Lizard	Sceloporus torquatus poinsettii	
Texas Scaly Lizard	Scelopo rus Spinosus	
Clark's Scaly Lizard	Sceloporus spinosus Clarki	
Merriam's Lizard	Sceloporus merriami	
Painted Horned Lizard	Phrynosoma douglassii	
Little Horned Lizard	Phrynosoma modestum	
Plated Lizard	Gerrhonotus lipocephalus infernalis	
Tessellated Lizard	Cremidophorus tescellatus	
Seven Lined Lizard	Cremidophorus perplexus	
White-spotted Skink	Eumeces guttulatus	
Hallowell's Water Snake	Tropidonotus sipedon transversus	
Brown Garter Snake	Thamnophis eques	
Emory's Pilot Snake	Callopelitis emoryi	
Bull Snake	Pityyophis catenifer sayi	

Table II - continued

Common Name	Zoological Classification	Remarks
Texas Coachwhip Snake	Zamenis taeniatus ornatus	
Splendid King Snake	Ophibolus splendidus	
Western Spreading Adder	Heteroden nascius	
Cottonmouth Moccasin	Agkistrodon piscivoros	Stumptail rare or not present.
Plains Rattlesnake	Crotalus confluentus	
Kennicott's Rattlesnake	Crotalus lepidus	
BIRDS		
Blue Quail	Callipepla squamata	Very abundant
Mearns Quail	Cyrtonyx Montezumae	No longer in area
Merriam's Turkey	Meleagris gallepavo merriami	No longer in area; may never have been
Rio Grande Turkey	Meleagris gallopavo intermedia	Increasing in numbers
Mourning Dove	Zenaidura macroura carolinensis	
Turkey Vulture	Cathartes aura septentrionalis	
Mexican Black Hawk	Urbitinga anthracina	
Elf Owl	Micropallas whitneyi	
Roadrunner	Geococcyx californianus	Referred to as a Paisano by Mexicans

Table II - continued

Common Name	Zoological Classification	Remarks
American Raven	Corvus corax sinuatus	
White-necked Raven	Corvus cryptoleucus	
San Diego Red-Wing	Agelaius phoeniceus neutralis	
Gambrel's Sparrow	Zonotrichis leucophrys	
Field Sparrow	Spizella pusilla	
Western Blue Grosbeak	Guriaca coerulea lazula	
House Sparrow	Passer domesticus	Introduced
Cliff Swallow	Petrochelidon lunifrons	Extends westward to mouth of Pecos.
Lesser Cliff Swallow	Petrochelidon lunifrons tachina	Extends eastward to mouth of Pecos.
Yellow Warbler	Dendroica aestiva	
Curve-billed Thrasher	Toxostoma curvirostre	
Giraud's Canyon Wren	Catherepes mexicanus albifrons	Very rare.
Black-creasted Titmous	Beelophus atricristatus	
Kodiak Dwarf Thrush	Hylocichla guttata	
MAMMALS		
Mexican Opossum	Didephis mesamericana texensis	
Crawford Shrew	Notiosorex crawfordi crawfordi	
Yuma Myotis	Myotis yumanensis yumanensis	

Table II - continued

Common Name	Zoological Classification	Remarks
Western Pipistrelle	Pipistrellus hesperus maximus	
Hoary Bat	Lasiurus cinereus	
Mexican Free Tail Bat	Tadarida mexicana	
Big Free-tailed Bat	Tadarida macrotis	
Black Bear	Ursus americanus amblyceps	Found rarely; only south of Rio Grande.
Raccoon	Procyon lotor mexicanus	
Ringtail	Bassaricus astutus flavus	
Striped Skunk	Mephitis mephitis varians	
Badger	Taxidea taxus berlandieri	
Gray Fox	Urocyon cinerevargenteus scottii	
Coyote	Canis latrans texensis	
Gray Wolf	Canis lupus monstrabilis	Rare or no longer present
Mountain Lion	Felis concolor stanleyora	
Bobcat	Lynx rufus baileyi	
Rock Squirrel	Citellus variegatus couchii	
Botta Pocket Gopher	Thomomys bottae limitaris	
Nelson's Pocket Gopher	Perognathus nelsoni canescens	

Table II - continued

Common Name	Zoological Classification	Remarks
Black-tailed Jack Rabbit	Lepus californicus terianus	
Audubon Cottentail	Sylvilagus audubonii minor	
Javelina	Pecari angulatus angulatus	
Mule Deer	Odocileus hemionus crooki	Very rare in study area.
White tail Deer	Odocileus Virgianus Texanus	
American Bison	Bison bisonamericanus	No longer present
Beaver	Castor canadensis	
Man	Homo sapiens	Predominently Latin American
Porcupine	Erethizon dorsatum Linnaeus	
Roof Rat	Rattus Rattus Linnaeus	
House Mouse	Mus Musculus Linnaeus	
White Throated Wood Rat	Neotoma Albigula (Hartley)	

Adapted from:

William B. Davis, The Mammals of Texas, Bulletin of the Game and Fish Commission, No. 41 (Austin, 1960).

Herbert C. Taylor, Jr., "The Archeology of the Area About the Mouth of the Pecos," Unpublished Master's Thesis, The University of Texas, (Austin, 1949) pp. 23-27.

TABLE III

FISH LIFE OF THE STUDY AREA

Common Names	Scientific Classification	Remarks
Black Bass	Micropterus salmoides	Found only in the Pecos and Devils Rivers
Channel Catfish	Ictalurus Lacustris	
Blue Catfish	Ictalurus furcatus	
Gasper-gou	Aplodinotus grunnieus	Fresh water Drum
Eel	Angiulla rostrata	Rare in Devils River
Rio Grande Perch	Herichthys cyanoguttata	
Yellow Catfish	Pilodictis olivaris	
Goggleye Perch	Ambloplites rupestris	
Bluegill Perch	Lepomis auritus	
Sun Perch	Lepomis auritus	
White Crappie	Pomoxis annularis	Introduced
Black Crappie	Pomoxis nigro maculatus	Introduced
White Bass	Lepibema chrysops	
Carp	Cyprinus carpio	Introduced ?
Gar Fish	Lepisosteus osseus Lepisosteus spatula	
Hickory Shad	Pomolobus mediocris	
Red Sunfish	Lepomis miniatus	
Pumpkinseed	Lepomis gibbous	

Adapted From:

Earl S. Hearld, Living Fishes of the World (New York: Doubleday and Co., Inc., 1961).

John Oliver LaGorce, The Book of Fishes (Washington, D.C.: National Geographic Society, 1961).

> shallow, and 25 per cent are rough-broken or rough-stony lands.[39]

The study area soils fall into the last mentioned category of rough-stony lands. This condition exists not only because of the prevailing slope but because of the practice of overgrazing in years past.[40] The grass cover of the area, as a result, is conspicuously absent except in areas where the soils are sufficiently deep to contain grass. Although the soils are shallow and the grass cover rather sparse in most places the grasses of the area are very nutritious and are considered excellent forage for most livestock. Recent pasturage deferment programs of the federal government have been instrumental in conserving much of the ranch land in the area by permitting the land to remain dormant for various periods of time.

The Study Area in Time

When man first appeared in the study area is not known. However, recent radiocarbon age determinations from

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[39] Ibid.

[40] Ibid.

Frightful Cave(CM68) in Coahuila, Mexico, indicate that the Pecos River Focus may have considerable antiquity.[41]

The earliest manifestations of human occupancy were undoubtedly the late Paleo big game hunting people although artifactual evidence has been limited in support of this theory.

> This circumstance may possibly be a reflection of the limited nature of previous explorations rather than an indication that the early big game hunting pattern failed to penetrate the area.[42]

Taylor,[43] who carried out the excavation at Frightful Cave states:

> Detailed and thorough studies of cultural relationships have not as yet been made for our Coahuila materials, but it is certain that they are closely related to those identified as the Pecos River Focus in the Big Bend of Texas immediately to the north across the Rio Grande (Martin, 1933; Pearce and Jackson, 1933; Kelly, Campbell and Lehmer, 1940, p. 24ff). To be sure, there are differences, for example, of subsistence economy, of techniques of manufacture, of proportional representation of identical or similar traits.

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[41]Walter W. Taylor, "Some Implications of the Carbon-14 Dates from a Cave in Coahuila, Mexico," Bulletin of the Texas Archeological Society, 27:215-234 (1956).

[42]Appraisal of the Archeological Resources of Diablo Reservoir Val Verde County, Texas, p. 11.

[43]Walter W. Taylor, loc. cit., p. 220.

TABLE IV[45]

CARBON 14 DATES FROM FRIGHTFUL CAVE, COAHUILA, MEXICO

Level	Date (in years before the present)	Material Dated
Top	1770+-250	3-warpfiber sandal
	3200+-350	cut wood
	3230+-350	fiber rosettes
	3620+-350	human feces
Middle[46]	9300+-400	cut wood
(Coahuila complex)	9540+-550	cut wood
	6170+-300	human feces
Bottom	7300+-400	twill-pad fiber sandals
(Cienegas complex)	8023+-350	human feces
	8080+-450	fiber scuffer-sandals
	8870+-350	cut wood

[45] Walter W. Taylor, op.cit., p. 219.

[46] Ibid, p. 218- "It is seen that all dates are stratigraphically consistent except two wood remnants from the middle level, which are older than any date from the bottom level. There is no evidence to indicate what caused this inconsistency, but it may be suggested that in deposits such as those of Frightful Cave, secondary deposition would not be surprising. It should be remembered, however, that whether or not their stratigraphic position can be accounted for, the oldest dates were derived from artifacts and therefore date artifacts."

> But these differences are not large, nor are they very numerous in comparison to the similarities. Certainly, the two cultural complexes are phrasings of a single basic culture, and closely related phrasings at that.[46]

A stratified alluvial terrace site at the mouth of the Devils River(VV188) was excavated by an expedition of The University of Texas in 1961.[47] This excavation produced dart points from the lower zones that resemble Plainview points in some ways. Undoubtedly these points are late Paleo artifacts and further attest to late Paleo Indian in the study area. The basic difference in these points from the Devils River Site and the classic Plainview points is a wider basal concavity which produces a swallow forked appearance.[48] In addition to these interesting lithic artifacts, carbon 14 dates taken from charcoal extracted at the site places the Pecos River Focus in an earlier occupational horizon than had been considered previously.[49]

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[46]Ibid.

[47]Unpublished doctoral dissertation of Leroy Johnson now in preparation for publication.

[48]Because of the swallow forked appearance of these points Mr. Johnson named the points "Golondrina" which is swallow in Spanish.

[49]Recently released information on these dates shows an antiquity of approximately 5000 B.C.

In the main, however, Texas archeologists view the Pecos River Focus as an archaic sequence with overtones of both the Neo-American phase and historic phase represented. According to Taylor[50] (Herbert C., Jr.) the archaic period in the study area assumes a time spread of approximately 4000 B.C. to 1000 A.D.; the Neo-American period from 1000 A.D. to 1500 A.D.; and the historic period from 1500 to 1885 when the Comanches and Apaches were absorbed into the Mexican culture.

Geological studies of the Trans-Pecos indicate that there have been a number of climatical changes during the existence of the Pecos River Focus.[51] These sequences of geological events, according to Allbritton and Bryan, show three periods of deposition and three periods of erosion in the southeastern Trans-Pecos.[52] It must be stated here, however, that recent studies of pollen from the sites at VV181, Damp Cave(VV189), and Centipede Cave(VV191) do

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[50]Herbert C. Taylor, op.cit.

[51]Ibid.

[52]Lehmer, op.cit., p. 120.

not substantiate in full the following sequences:[53]

1. The Neville Deposition: a long and relative moist period during which the earliest of the alluvial formations was built up, a period during which local fauna included such forms as the mammoth and the American horse.

2. The Post-Neville Erosion: a long and relatively dry period during which the Neville formation was heavily eroded and the mammoth and horse disappeared.

3. The Calamity Deposition: a moist period during which the middle alluvial formation was built up, a period during which the local fauna was essentially modern.

4. The Post-Calamity Erosion: a second dry period during which the top of the calamity formation was eroded and there was some arroyo cutting.

5. The Kokernot Deposition: a short, relative humid period during which the thin upper layer of the valley fills was laid down, a deposition which lasted into historic times.

6. The Post-Kokernot Erosion: the current cycle of arroyo cutting and sheet erosion, probably resulting in part from overgrazing.

The archaic period, which at the present time represents the greatest span in time of human occupancy

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[53]In 1959 Dr. Jeremiah Epstein of The University of Texas took pollen samples from both Centipede Cave and Damp Cave. In 1961 Leroy Johnson took pollen samples from VV188 at the mouth of the Devils River. The three findings tend to reverse the order of sequence in part rather than prove it invalid altogether.

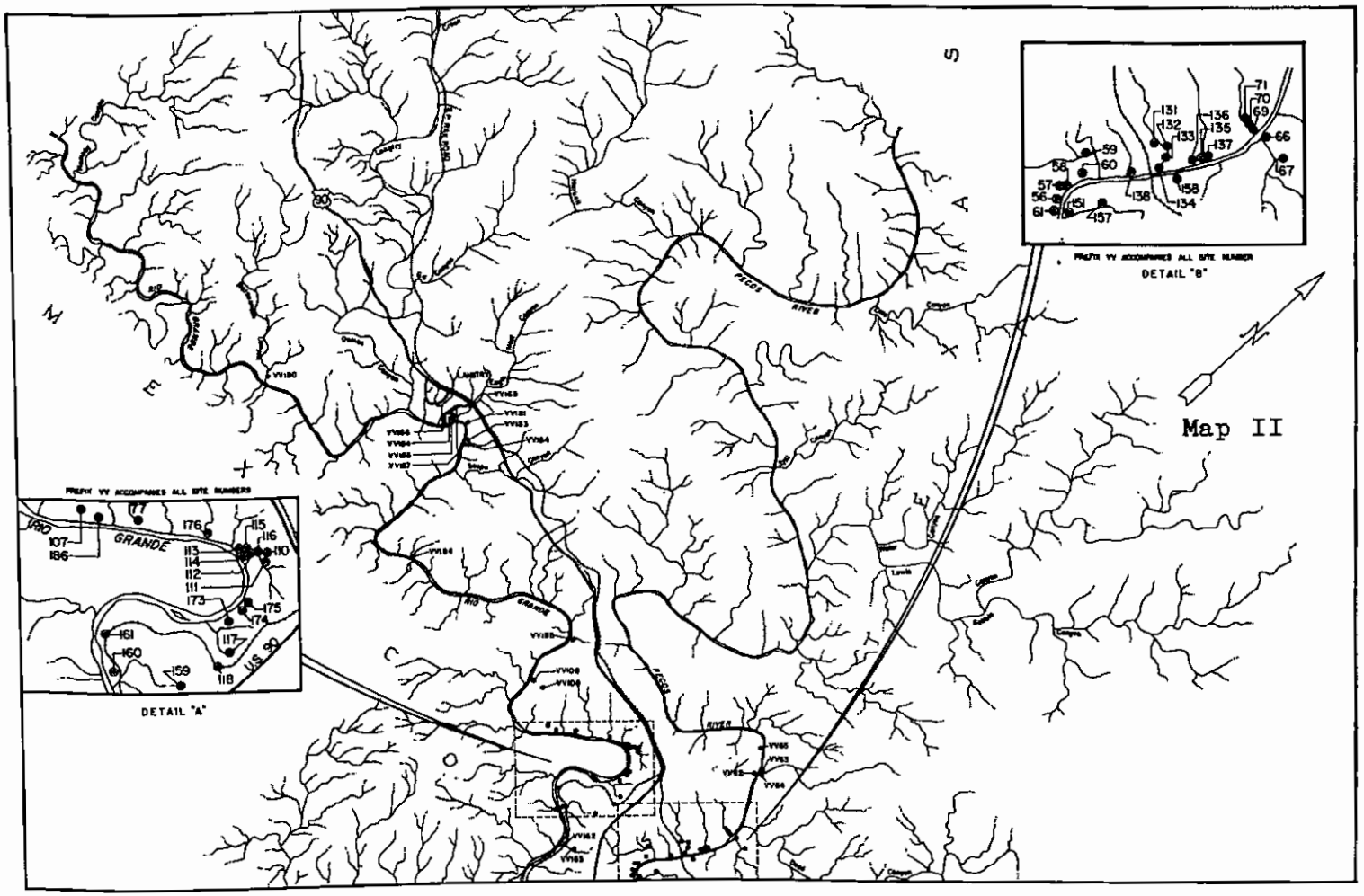

Figure III. Upper Amistad Basin. Courtesy National Park Service, U.S. Department of the Interior.

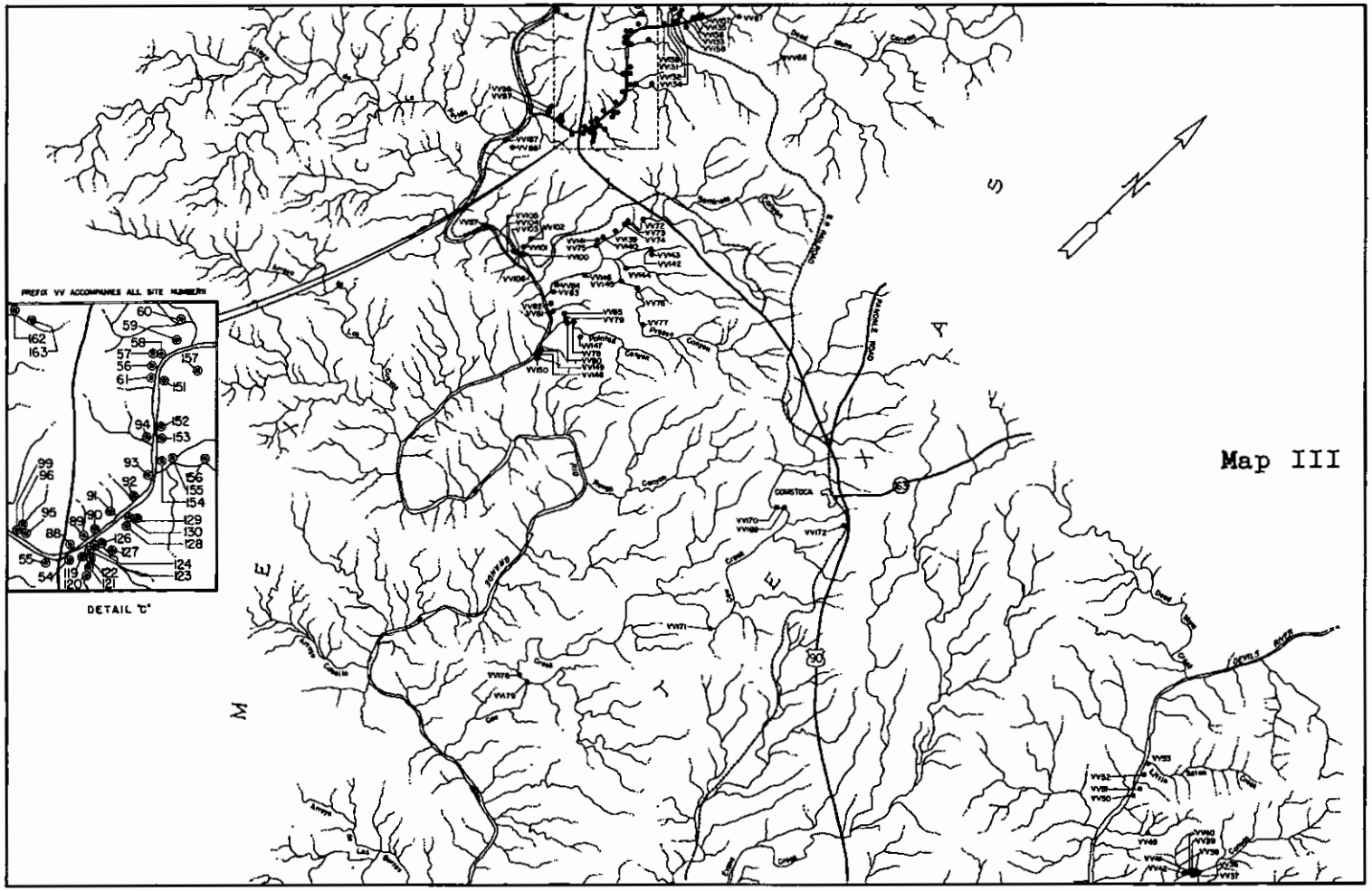

Figure IV. Middle Amistad Basin. Courtesy National Park Service, U.S. Department of the Interior.

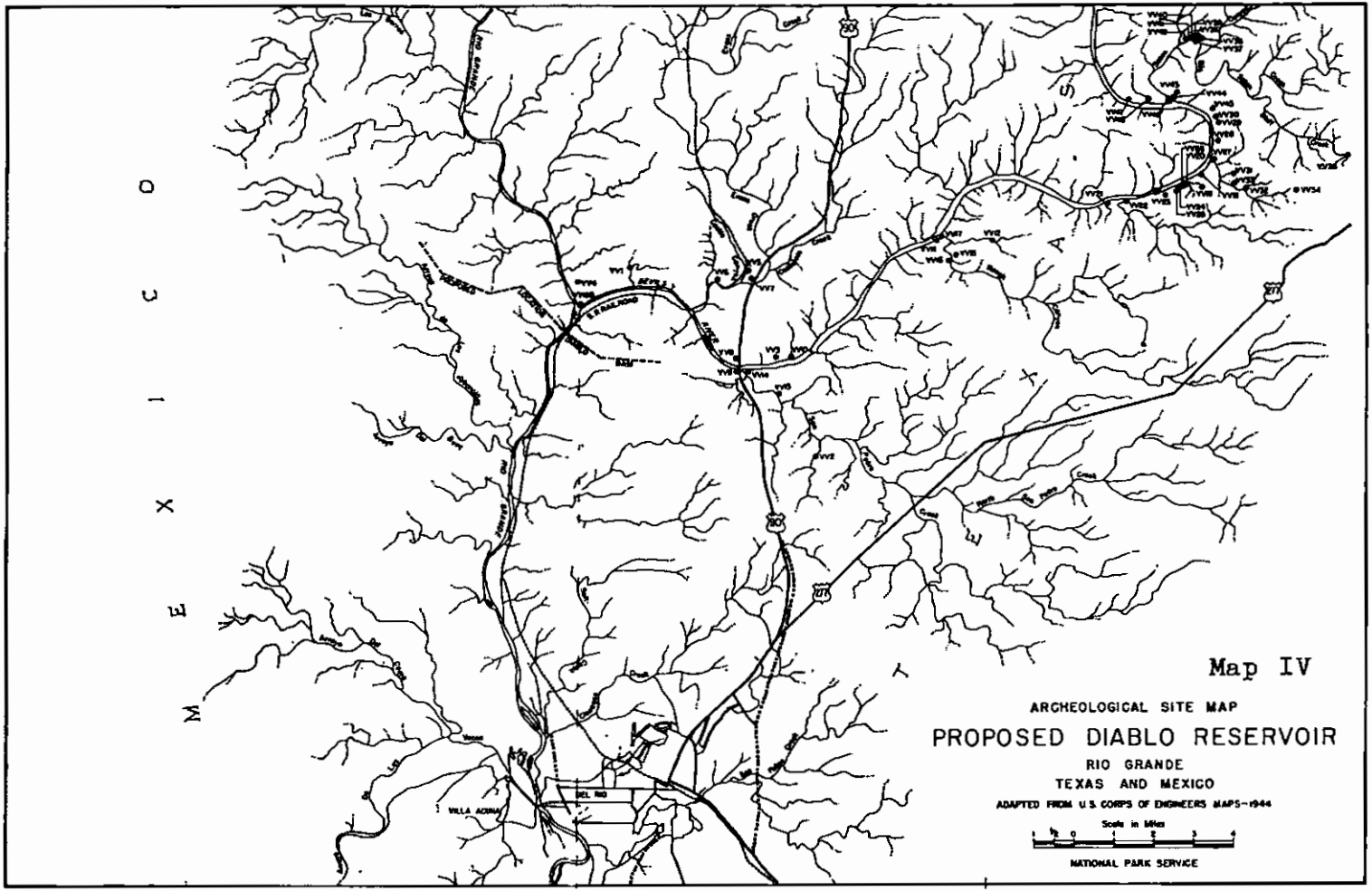

Figure V. Lower Amistad Basin. Courtesy National Park Service, U.S. Department of the Interior.

for the study area, is placed conjecturally in its earliest manifestations in a moist, Calamity formation around 4000 B.C. by Taylor.[54] This may or may not be true, but in the light of the more recent findings previously mentioned there is every reason to suspect a much earlier beginning.

The Cultural Materials of the Pecos River Focus

The culture of the people in the early phase of the Pecos River Focus was unquestionably low, particularly so in view of later cultures of ancient Mexico and in Central America where the early pottery producing cultures are sometimes designated as archaic.[55] The archaic Pecos River Focus is preagriculture and preceramic as far as investigations up to the present time have indicated. It is true that fragments of potsherds were discovered at the Devils River Mouth Site(VV188) in 1961, but this site, as previously stated, is an alluvial terrace and does not

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[54]Herbert C. Taylor, op. cit., p. 119.

[55]H. M. Wormington, Ancient Man in North America (4th ed. rev.; Denver, Colo.: The Denver Museum of Natural History, Popular Series No. 4, 1957), p. 273.

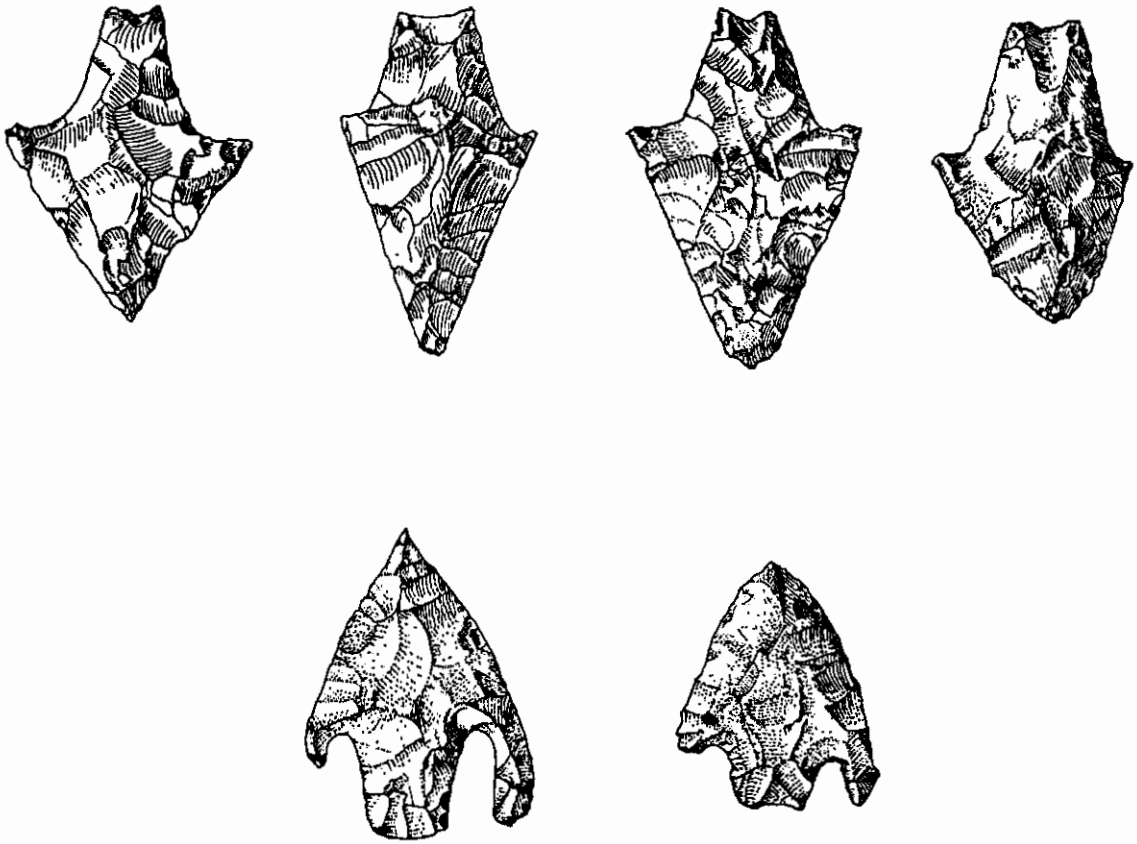

Figure VI. The Diagnostic Dart Point Types of the Pecos River Focus.

Top: Langtry
Bottom: Shumla

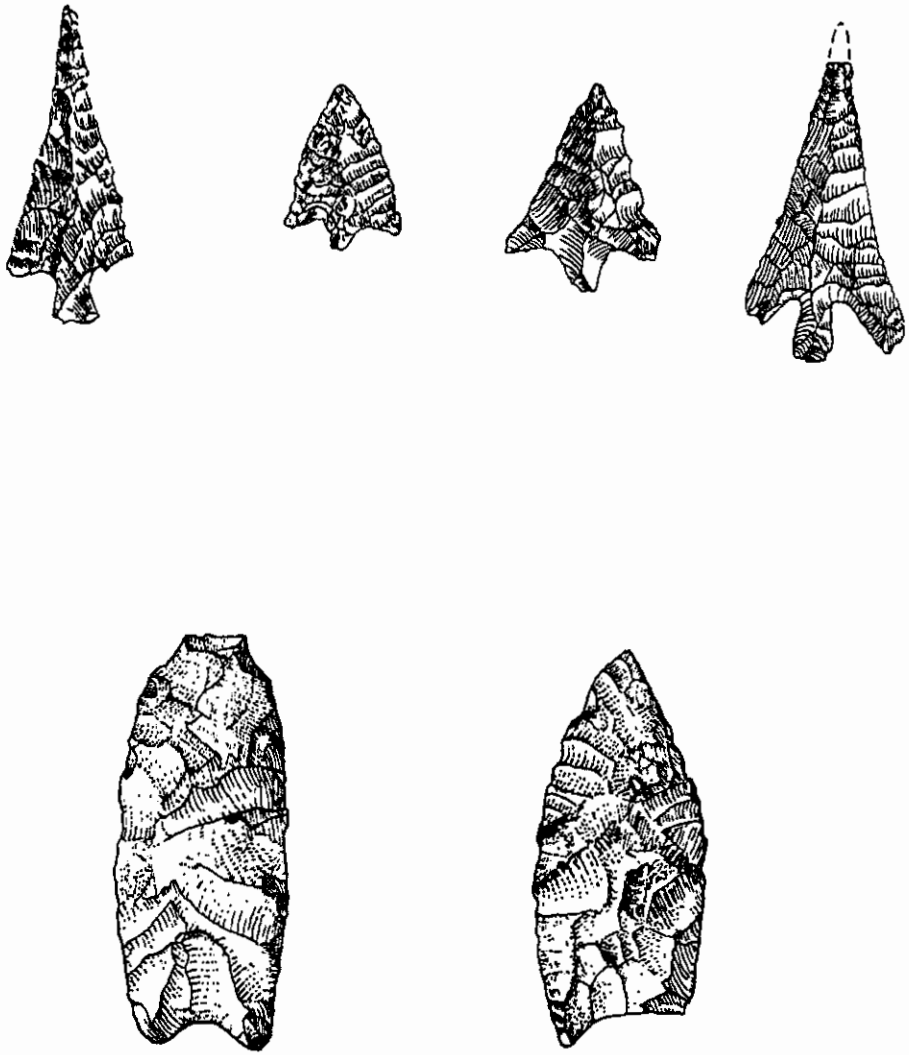

Figure VII. Arrow Points and Early Man Points of the Area.

Top: Late arrow points of the Neo-American Phase--Perdiz.
Bottom: Earliest dart points--Plainview types which are nearly Folsomoid.

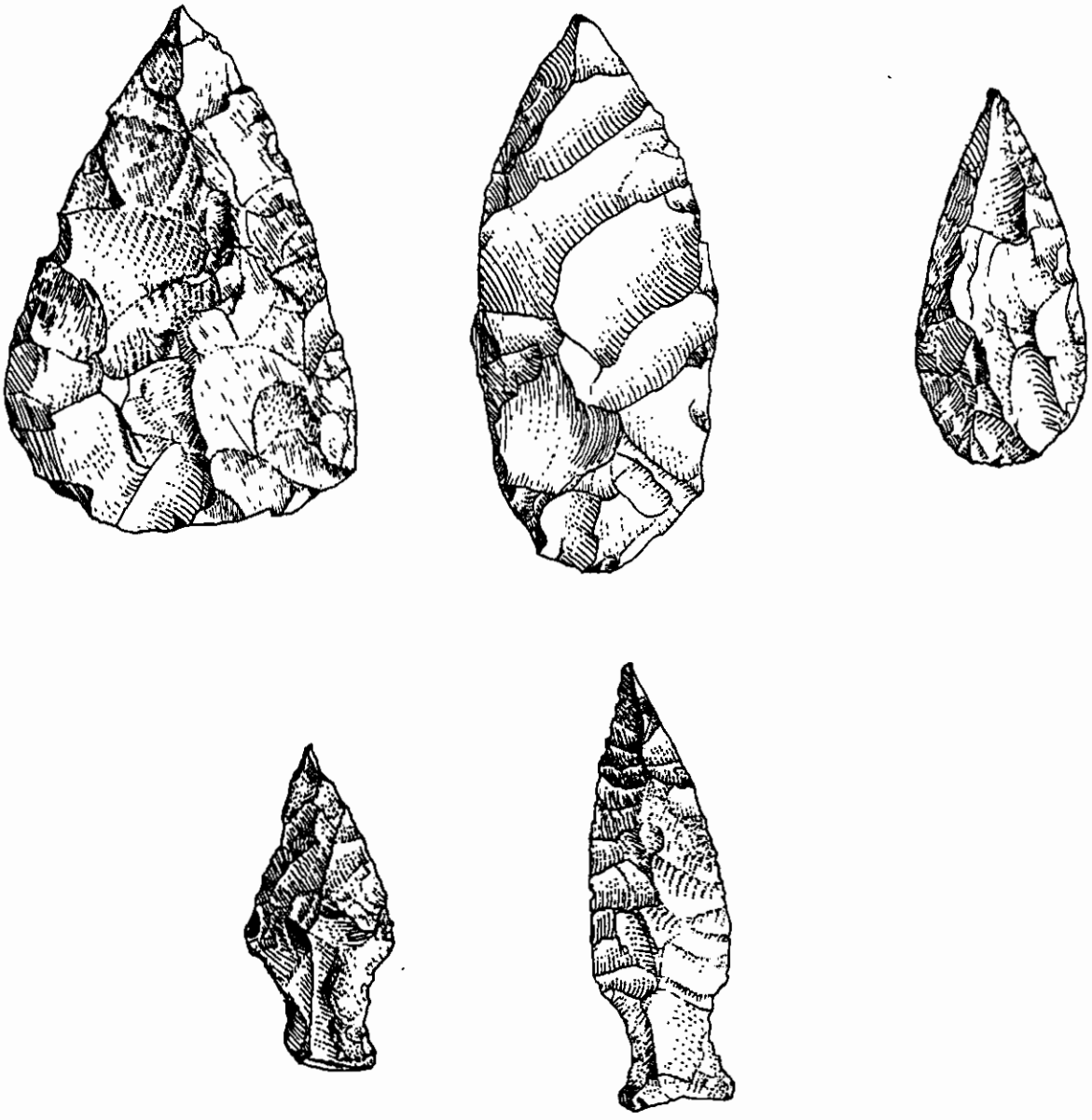

Figure VIII. Early Archaic types of the Area.

Top: Abasola
Bottom: Pandale (twisted)

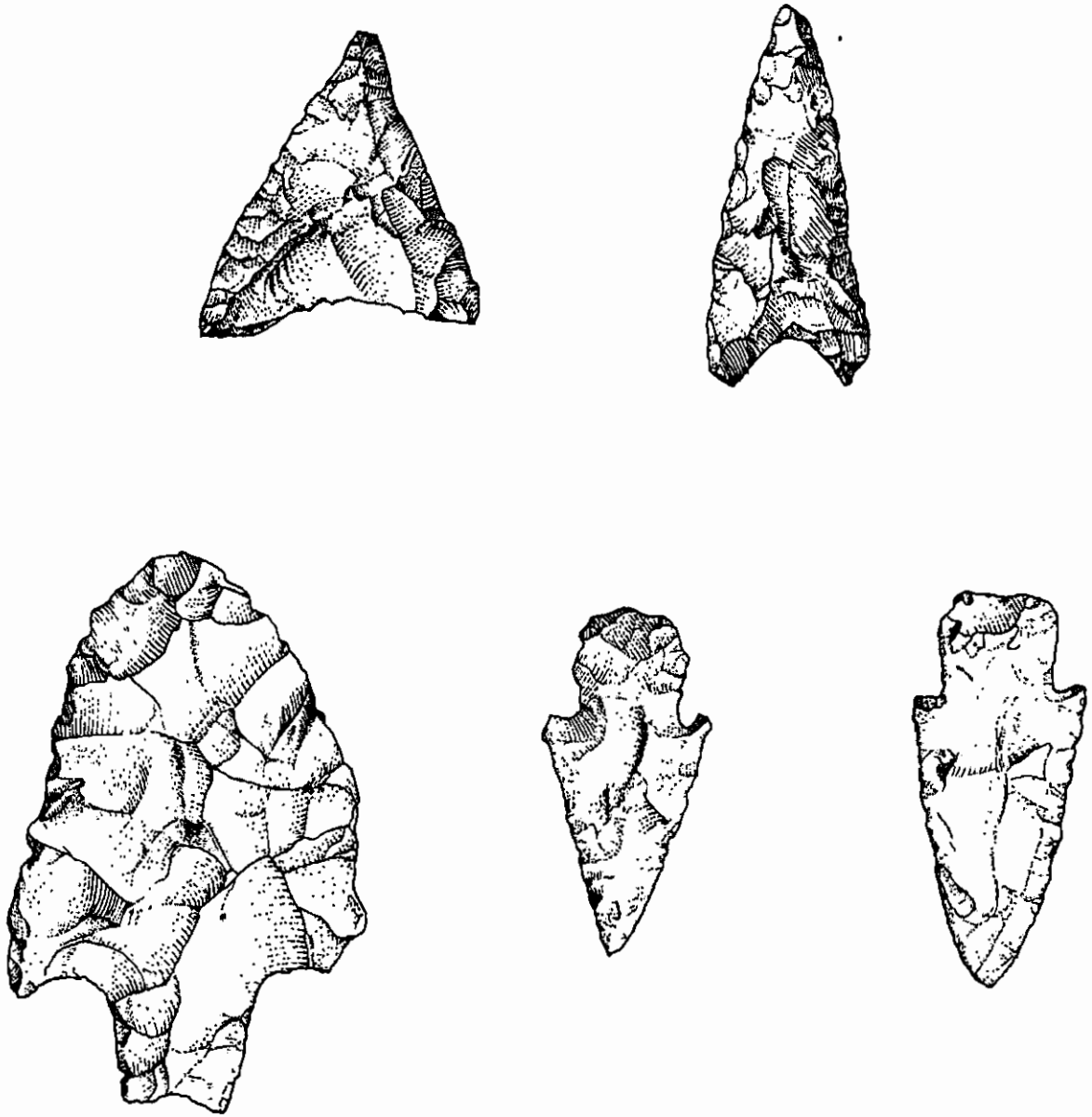

Figure IX.

Tortugas, Meserve, Amalgre, and "Comstock" Points.

Top: Early points, A, Tortugas; B, Meserve-like point
Bottom: A, Amalgre spear point; B and C, "Comstock" points.

represent the early Pecos River Focus entirely in its upper stratigraphy.

According to Lehmer[56] the rockshelters and caves of the study area have yielded quantities of perishable materials in addition to stone artifacts which indicate a hunting and gathering economy.[57] Certainly this can not be questioned, however, which phase of the economy of these people was the dominant phase has not been determined although food gathering evidence appears to be more prevalent at the present time.

Among the cultural remains which are of both a perishable and a nonperishable nature, the following types of artifacts are encountered in the caves and rockshelters of the study area.[58]

Although there is some doubt as to the classification of some of the artifacts listed,[59] Table V must be

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[56]Lehmer, op. cit., p. 124.

[57]Ibid.

[58]J. E. Pearce and A. T. Jackson, "A Prehistoric Rock Shelter in Val Verde County, Texas, The University of Texas Bulletin, No. 3327, Austin, 1933, pp. 132-135.

[59]The classification of a few of the artifacts is questionable. Present day methods of classification do not permit the elaboration which is utilized for some of the artifacts in the table.

TABLE V[60]

CHARACTERISTIC CULTURAL MATERIALS

Class of Artifacts	Whole	Broken or Fragmentary	Total
Flint projectal points	1384	1624	3008
Flint Scrapers	252	61	313
Flint Knives	130	39	169
Flint Knives-Corner tang	--	2	2
Flint awl with corner tang	1	--	1
Flint awls or drills	16	5	21
Flint bone crushers	10	--	10
Flint war club spikes	13	--	13
Flint fist axes (coups-de poing)	2	--	(sic)8
Flint ax	1	--	1
Flint spokeshave	1	--	8
Flint gouges	3	--	3
Flint hoe blade (?)	1	--	1
Metates	32	7	39
Metates bearing red paint stains	4	--	4
Mano stones	116	27	143
Manos bearing red paint stains	5	--	5

[60]Taken from the report of the Pearce and Jackson excavation of 1932. Several musical instruments are listed in this table.

Table V - continued

Class of Artifacts	Whole	Broken or Fragmentary	Total
Rubbing Stones, volcanic lava	7	--	7
Pitted stones	3	--	3
Fragment of pestle stone	--	1	1
Abrading or sharpening stone, large	1	--	1
Sandstone grinding rock	1	--	1
Carved stones	5	--	5
Painted pebbles	40	8	48
Painted stone, large	1	--	1
Scratched pebbles (showing no paint)	51	5	56
Hammerstones	2	--	2
Stone ball	1	--	1
Drilled pebbles	1	1	2
Fossils (in graves)	2	--	2
Stone with asphalt coating	1	--	1
Yellow ocher (limonite), ground, moulded, or shaped	--	2	2
Orange-colored ocher (not shaped)	1	--	1
Red ocher (hematite) paint stones	10	--	10
Paint-grinding pebble (mano)	1	--	1

Table V - continued

Class of Artifacts	Whole	Broken or Fragmentary	Total
Charcoal "pencil" (used)	1	--	1
Stone fire-drill caps (?)	3	--	3
Yucca fire-sticks (split) (hearth sticks)	6	12	18
Wooden fire-drills	1	3	4
Digging sticks	5	1	6
Sharpened awl-like sticks, small	3	--	3
Wooden needles and awls	16	2	18
Wooden foreshafts for arrows	11	--	11
Wooden needle (?), extra long	1	--	1
Wooden foreshaft for atlatl darts	1	1	2
"fuzz" stick (problematical)	1	--	1
Wooden stakes (cut sticks)	6	--	6
Notched and grooved sticks	3	2	5
Painted sticks	1	1	2
Fragments of worked reeds	--	2	2
Fragments of unworked reeds	--	3	3
Bundles of tied sticks	5	--	5
Nock-ends of arrowshafts	--	4	4
Wooden scoop or shovel	1	--	1

Table V - continued

Class of Artifacts	Whole	Broken or Fragmentary	Total
Sticks and reeds wrapped and tied with cord	9	--	9
Pebbles wrapped and tied with grass	3	--	3
Worked bone wrapped and tied with yucca leaf	1	--	1
Grass stem wrapped and tied with sinew	1	--	1
Animal bone wrapped and tied with grass	1	--	1
Fragments of rabbit sticks	--	2	2
Wooden rabbit stick, carved	1	--	1
Carved wood (ends of bows ?)	--	3	3
Fragment of used wood	--	1	1
Reed whistle or call	--	1	1
Bone whistle or call	1	1	2
Bone implements for net making (?)	2	--	2
Wooden flaking tool	1	--	1
Deer bone flaking tools	9	6	15
Deer antler flaking tools and gouges	7	4	11
Cut deer antler pestles	--	2	2
Bone awls	35	18	53
Bone needles	4	--	4

Table V - continued

Class of Artifacts	Whole	Broken or Fragmentary	Total
Bone gouge	1	--	1
Bone beads	22	3	25
Snail shell beads	41	5	46
Stone bead, crude	1	--	1
Engraved mussel shell	1	--	1
Mussel shell palettes	3	--	3
Mussel shell spoons or ladles	4	2	6
Conch shell gorget, drilled	1	--	1
Shell pendant	1	--	1
Mussel shell rattles, drilled, in pairs	4	--	4
Tortoise shell cup	1	--	1
Fragment of gourd	--	1	1
Fragments of skins	--	20	20
Skin pouch (fragmentary)	--	2	2
Grass mat	--	1	1
Fragments of matting	--	168	168
Headbands, burden bands, or belts	--	16	16
Fragment of waterproof basket	--	1	1
Fragments of baskets	--	62	62
Sandals of yucca	97	52	149

Table V - continued

Class of Artifacts	Whole	Broken or Fragmentary	Total
Fiber pads (for sandals ?)	20	--	20
Sandal frames of yucca	2	--	2
Fiber cords, various lengths	--	139	139
Grass cords, various lengths	--	9	9
Skin thong	--	1	1
Fiber cords wrapped with skin	--	10	10
Fiber quids (chewed into balls)	80	--	80
Stick quids (chewed at one end)	44	--	44
Apocynum fiber, for cord making	1	--	1
Grass bed	1	--	1
Square-weave object	1	--	1
Bundles of grass and yucca leaves	10	--	10
Bundle of herbs	1	--	1
Fiber-cord nets	8	3	11
Grass nets	3	--	3
Prickly pear leaves tied and sewed	8	--	8
Piece of made (cemented) floor	--	1	1
Totals	2609	2349	4958

considered in the light of its diagnostic significance to the entirety of the focus. The Fate Bell shelter(VV74) is the largest and the richest site in the area in view of the cultural material recovered by the Pearce and Jackson excavation. This does not imply, however, that other sites in the area are not as rich in cultural remains. Each site within the area is different, usually, in regard to the general distribution of some materials throughout the stratigraphy, but the material content is essentially the same. Where the content excavated is different in a site from those surrounding it, the problem grows much more complex for the archeologist.

In the initial excavational procedure in the caves and rockshelters of the area, the investigator usually encounters enormous accumulations of fibrous materials which as a rule comprise the upper zone of the excavation. It is in these rich organic materials that many of the musicological artifacts are recovered although drilled mussel shells for suspension as rattles have been found in much deeper zones. Instruments made of ordinarily perishable material such as bone, fiber, or wood are perfectly preserved.

Other types of sites in addition to the caves and rockshelters of the area are Open Surface (Burned Rock Kitchen Middens), Buried Terrace, and Stratified Terraces.[61] These sites, too, are quite productive artifactually although they do not contain materials of a perishable nature as do the caves and rockshelters. Exposure to moisture in any form quite naturally hastens decay and therefore the presence of these materials in exposed sites is very unlikely.[62]

Hunting

The hunting methods of the primitive people are admittedly not known, but the so-called "implements of the chase" which have been recovered from the rockshelters and caves, and those which are depicted in their paintings

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[61] Appraisal of the Archeological Resources of Diablo Reservoir, Val Verde County, Texas, p. 25.

[62] Historic metal arrow points have been shown to the writer that were recovered from open surface middens and were in a reasonable state of preservation. This does not, however, imply that earlier cultural materials can be expected to be present in these sites; it merely testifies to a considerable aridity and rapid rate of evaporation within the study area.

indicate a dedication to hunting. Kelly's[63] observation that these people possessed a sympathetic magic hunting cult is difficult to ignore in view of the many depictions of game animals being pursued and put to death. Also, the quantity of implements associated with hunting such as atlatls, spears, and darts represent an overwhelming percentage of depictions that have been positively identified. The bow and arrow, however, was not a tool of the early primitives in the area.[64] Apparently the bow and arrow did not become an important implement until much later, perhaps during the late Neo-American phase of occupancy.

Among the remains from various caves and rockshelters in the area are found the bones of deer, rabbit, squirrel, turkey, quail, coyote, and buffalo. These animals may have been taken by traps and snares or killed with the atlatl. This researcher has recovered small trigger-like devices in several cave and rockshelter sites which

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[63]Herbert C. Taylor, op. cit., p. 80.

[64]Archeological investigations within the area over a 30-year period have failed to produce bows made for the purpose of hunting or for weapons. It is true that three bows were recovered by Martin in 1933 from the Shumla Expedition; however, it was Martin's opinion, as well as this writer's opinion, that these bows were not made for the purpose of hunting. It is the writer's opinion that these bows are musical bows.

would imply that these early people were adept at taking game with various snare devices as well as with their weapons.

It has been suggested by Dr. Kelly[65] that this obvious dedication to hunting which resulted in a magic hunting cult in the area about the mouth of the Pecos was possibly the outcome of severe drouth conditions then prevailing. Presumably the early people relied heavily upon hunting, but with the consequential decrease of large animals the people devised religious or magical implements in an attempt to produce game. This may or may not be true, but the concept now in vogue is that the early people in the area were only seasonal dwellers and were concerned with hunting until the supply of game became exhausted.[66] Magical devices appeared to be a natural course of events for them to take with the shifting of emphasis to the food gathering subsistence economy.

Food Gathering

Food gathering, previously mentioned, is an important, if not the most important aspect of this primitive

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[65]Herbert C. Taylor, loc. cit., p. 121.

[66]Personal conversation with E. B. Jelks, September, 1962.

economy.[67] This is evidenced through the archeological excavations in which are found varieties of beans, berries, nuts, seeds, snail shells, mussel shells, and fibrous quids which have been chewed and actually consumed.[68] Human fecal remains often contain a substantial quantity of these items of food gathering.

Fishing

Almost all of the caves and rockshelters investigated within the area of heaviest concentration (see detail "C" of Map III) near the confluence of the Pecos River with the Rio Grande River, and those which are located along the main rivers have yielded evidence of fishing by the primitives. How this fishing was accomplished is a matter of conjecture although we know that nets were used in this activity.[69]

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[67] Herbert C. Taylor, op. cit., p. 121.

[68] In 1959 the writer was shown a perfectly preserved mummy of an adult woman recovered from a cave near Langtry, Texas, by Guy Skiles, an amateur archeologist. The cause of death had not been determined, yet the entire abdominal cavity which was exposed was a mass of partially digested and digested fibrous material which could have accounted for her demise.

[69] Nets have been found by the writer and other investigators in recent years. Also the recovery of problematical net sinkers has been made at several sites. These

Martin[70] describes the finding of a complete fishing gear from one of the Shumla Caves:

> In a grave, over a burial in cave No. 5, was found a complete fish net with ring and pole attached. The wooden structure of this device had been purposely broken before interment with the idea of "killing" it so it would accompany its deceased owner to his new life.

Martin[71] also describes the finding of sinkers:

> Sinkers were well represented in the Shumla Caves. Three specimens that could be identified as such were found in the ashes of cave No. 6, in old Shumla Cave, and Pecos Cave No. 1. Two were spheres of limestone each with a groove encircling it. The third specimen was of a soft red stone, otherwise like those previously described.

Although the identification of the following is somewhat questionable, Martin[72] nevertheless believed that the primitives used fishhooks:

"sinkers" are usually natural "doughnut" shaped river stones which occur rather frequently along the Pecos and Rio Grande Rivers.

[70]George C. Martin, "Archeological Exploration of the Shumla Caves," Big Bend Basket Maker Papers No. 3, Witte Memorial Museum, San Antonio, Texas, 1933, pp. 53-54.

[71]Ibid., p. 55.

[72]Ibid., p. 50.

> Many fish hooks were taken from the caves. The majority of these were merely thorns of the devil's head cactus, artificially recurved, which had been fastened to lines and so used.

Undoubtedly the spearing of fish took place in the clear waters of the Devils River and Pecos River. The waters of these two rivers are usually quite clear and were probably clearer in the early archaic times, thus enabling the spear fisherman to seek out his quarry.

An interesting method of cooking fish by the primitives was discovered by the writer in 1958 during the survey of the archeological resources of the Amistad region. The survey party had begun a routine search for surface artifacts in Coon-tail Spin Cave(VV82) when quite by accident one of the members of the party unearthed a large prickly pear (Opuntia) leaf which had been split. Upon examination of the leaf, it was found that a fish had been sewn inside. Obviously the intentions of the primitive who manufactured this was to cook the fish by baking. The leaf was sewn with a strong fiber cord. Although the fish was not identified it resembled the skeletal composition, and had the scales of a small Gar Fish (Lepisosteus osseus).

The Burial Methods

The burial techniques employed by the prehistoric people of the area are largely those which are typically archaic.[73] The archaic technique usually involves the flex burial method in which the body is placed in a half sitting, half standing position, possibly a considerable time before actual interment.[74] Other burials which have been recovered, however, have been of the mass type or have been placed in mats and/or animal skin bags.[75] Isolated burials have been removed from crevices and small caves in the faces of cliffs by ranchers of the area. Oftentimes these burial caches are almost inaccessible because of the near vertical incline of the canyon walls. Unfortunately none of these discoveries have been reported for publication.

At the present time it is impossible to determine the percentages of infant burials with those of adult burials in the area due to a lack of qualified information

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[73] Encyclopaedia Britannica, II, 260.

[74] Flex burials are usually found positioned with the body on its side although the flexing of the legs and back are apparent.

[75] The writer has personally recovered and assisted in the recovery of several burials of these various types.

on the subject. However, it seems that the number of infant burials recovered exceeds the adult burials.[76] This possible majority of infant, still-born infant, and child burials attest to an exceptionally high mortality rate among these primitive people.

Ethnomusicological Activities in the Area

There have been no gross evaluations of the musicological resources of the Pecos River Focus as far as it has been possible to determine.[77] Although this region of Southwest Texas is such a rich field for this type of evaluation because of the large quantities of ordinarily perishable materials available, researchers have not been attracted. In addition to the compiling of lists of musical instruments recovered within the area, the Pecos River Focus presents a challenge for comparative studies of its

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[76] This statement is based on published reports and reports in preparation of various sites within the area which have been excavated. Also through empirical knowledge of the area and its archeological peculiarities, the writer assumes full responsibility for the statement.

[77] The use of the term gross refers here to the accumulation of pertinent data concerning instrument recovery, and the quantitativeness of these recoveries.

materials with those of other desert cultural components throughout the southwestern United States and Mexico. Perhaps the cultural stature of the Pecos River Focus, in view of its archeological remains, has not invited musicologists to the area to study. Perhaps, too, the knowledge of the area in general is not widespread.

It cannot be overemphasized, however, that the assembling of information concerning the instruments and other related musicological materials is vital because of the short time left before the waters of Amistad Reservoir innundate most of the major sites about the mouth of the Pecos River. The unique opportunity of having antiquity in such abundant quantity for study will probably never again present itself in the United States.

Despite the apathetic attitude of many students and scholars for the area's wealth of ancient musicological materials, the region is nevertheless crucial in regard to its cultural position to other similar components in this area of North America.[78] Certainly a people capable of artistic achievements such as these people have exhibited

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[78]Personal conversation with E. B. Jelks at the writer's home, September, 1962.

through their paintings would not be devoid of the expression of music.[79] Regardless of the lack of an organized system of scales and notation, the musical activities of these primitives are important and command a place of consideration for musicology in general.[80]

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[79]Personal conversation with Dr. Carl Shuster of Woodstock, New York, at the writer's home, September, 1962.

[80]Whether or not these people possessed a scale or scales and a system of notation is at the present time a matter of speculation although the likelihood is doubtful.

C H A P T E R I I I

THE PICTOGRAPHS AND PETROGLIPHS OF THE AREA

Through the paintings, which are referred to as pictographs by the archeologists, we are given a more candid insight into the cultural endeavors of the early people. As Gebhard[81] states, little is known at the present time of the task of relating pictographs to specific cultural groups, yet a solution to the problem will obviously make it possible to arrive at a far more valid and accurate picture of the prehistoric peoples of North America.

> There can be little question that a study of the Diablo pictographs will be able to contribute much to our over-all understanding of primitive art, its evolution and characteristics. The chronology of the pictographic styles found in the Diablo area would seem to follow certain basic patterns found in primitive art throughout the world. The historical succession of these styles refutes the

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[81]Dr. David Gebhard was associated with the Roswell Museum and Art Center during the initial phase of writing this thesis, but is now located at the University of California at Santa Barbara. Under the joint sponsorship of the National Parks Service and the Roswell Museum and Art Center he was placed in charge of a pictographic survey and analysis of the area's paintings during 1958 and 1959 as part of the Inter-Agency Archeological Salvage Program.

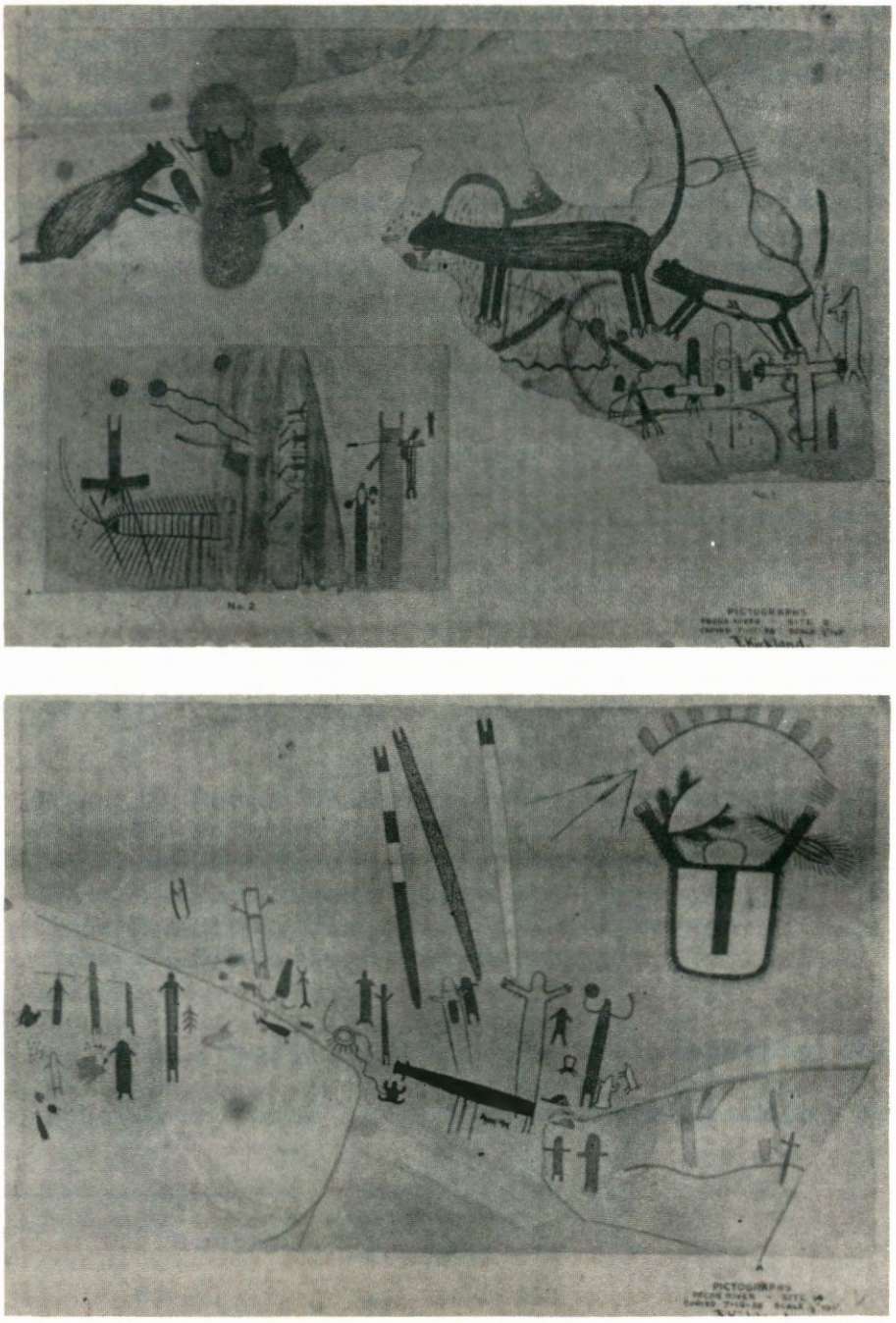

Figure X.

Top: Typical Pecos Style I. Provenience Panther Cave (41VV83)

Bottom: 41VV134

> commonly held nineteenth century view that there is a continual one-way evolution in art, from a "grouping" beginning to the employment of such sophisticated devices and aerial and linear perspective.[82]

Gebhard[83] states that his study tends to differ from previous work with the paintings of the area in the diversity of styles which followed the classic Pecos River Type I drawings. From a stylistic point of view there were at least four types of red monochrome drawings which chronologically would seem to fall between the Pecos pictographs and the much later historic drawings. This tentative chronology for the paintings of the Pecos River Focus would appear to be:[84]

> Type 1--Pecos Drawings (earliest paintings)
> Type 2--Painted Pebble Drawings
> Type 3--Red Figure Style Drawings
> Type 4--Red Linear Style Drawings
> Type 5--Proto Historic Style Drawings
> Type 6--Historic Style Drawings

This most recent study included only thirteen sites; however, each one of those sites studied contained

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[82]Gebhard, op. cit., p. 19.

[83]Ibid., p. 25.

[84]Ibid.

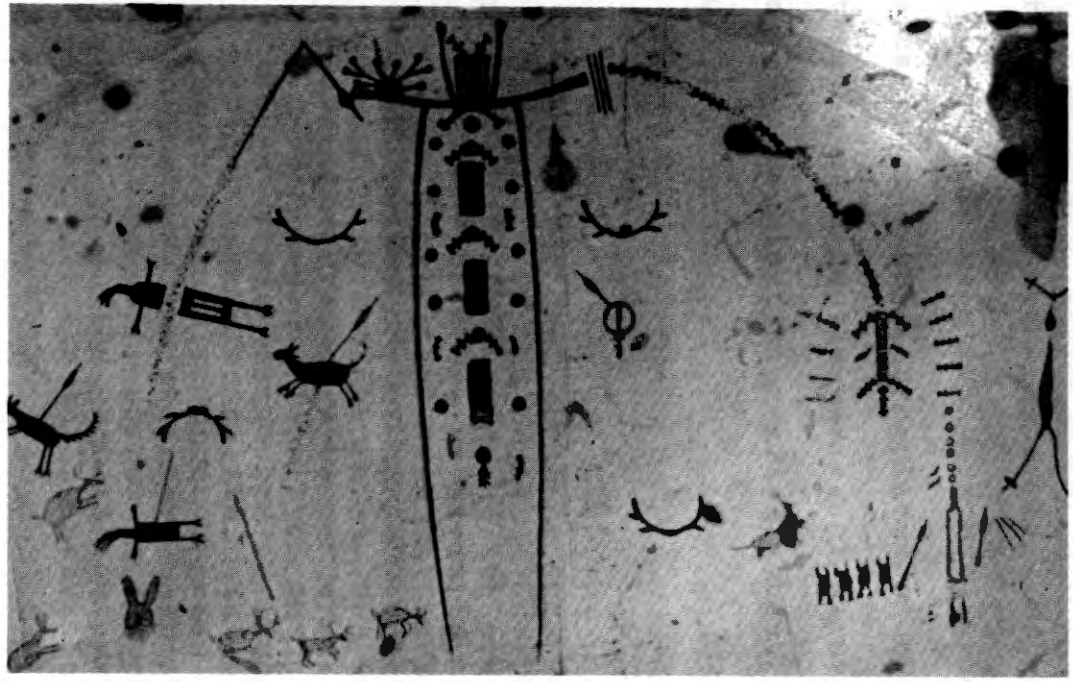

Figure XI. Large Anthropomorphic Figure (Near 41VV76). The panel no longer exists due to the flood of 1954.

examples of Type I, Pecos Drawings.[85] Within the caves and shelters the paintings often cover the entire interior walls and even parts of the ceilings. Apparently ladders of considerable length were used in reaching the ceilings and upper portions of the high walls. Oftentimes paintings may be observed in relatively exposed places near the mouth of the caves or on the sheer faces of the canyon walls. The materials used in the making of paints were extremely durable and undoubtedly contained a binding agent which was equally as durable.

> Stone pallettes, metates, and manos utilized in grinding and mixing the paint have been found in the excavations, together with several specimens of paint. On the basis of our present knowledge it appears that reds and the orange paints were derived from ochre or hematite, although some of the more brilliant reds may have been obtained from the red ore of mercury which is found in Big Bend County. Black paint used in the drawings was generally derived from powdered Manganese which had been mixed with oil or fat. Yellow was obtained from either ochre or limonite; white from gypsum, kaolin or barite. The pigment for the few rare examples of blue-green color encountered in the drawings must have been obtained by trade and was probably copper oxide procured in either Mexico or to the west in southern New Mexico and Arizona. We are still uncertain about the nature

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[85]The frontispiece of this thesis is an excellent example of the early Type 1 Pecos Drawings although some later superimpositions are present in the panel.

Figure XII. Different Painting Styles of the Area.

Top: Red linear design painted on canyon walls. Note dancing figures in Insert No. 5.

Bottom: Left--Red figure type, highly stylized.
Right--Solid monochromes showing a great sense of linear perspective. Note the legs of the deer in Insert No. 1.

> of the material utilized for the binder of the colored pigments. It was probably animal fat, but the possibility exists that vegetable oils may have been used instead.[86]

The pictograph sites investigated in preparation for this thesis produced one interesting example of the durability of the primitive paintings. At the small shelter(VV73), which is adjacent to the Fate Bell Shelter(VV74), one may see here the name "McCabe," painted in bold black letters with the date 1882. The paint used by the man McCabe was a common type much in use at that time. This name resides only a few inches from an ancient mural executed in red and outlined in black which is quite vivid in comparison with the "McCabe" painting. Other murals at this site are considerably more vivid than the "McCabe" painting. The time differential between the "McCabe" painting and the early Pecos style paintings at this site can only be estimated; however, it involves several thousand years if we accept the hypothesis that the early Pecos style paintings were contemporaneous with the earliest occupational manifestations of humans within the area.[87]

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[86] Ibid., pp. 21-22.

[87] There is every reason to suspect that these early type 1 paintings were produced by the earliest occupants in the area although this as yet has not been proved. Certainly it is safe to contend, however, that at least an early occupational phase produced the type 1 paintings.

Panther Cave(VV83) is probably the most outstanding of all the pictograph sites of which the early Pecos style 1 paintings are represented. The highly stylized human forms are frequently portrayed as anthropomorphic figures holding usually in the right hand what appears to be atlatls[88] and other objects. These objects have been identified by archeologists and expert primitive art observers, and unquestionably are (for the most part) weapons, and the so-called "implements of the chase." However, it is necessary to point out that some of the objects which have been identified and other objects which have not been identified could conceivably be musical instruments. In the opinion of the writer of this thesis, and in the opinion of Dr. Carl Shuster[89] who is considered a leading authority on primitive paintings, the possibility exists that some of the objects portrayed by the primitive artists within the area are musical instruments. Although weapons and other objects are unquestionably more numerous in the pictographs

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[88]Aztec name for a primitive spear and dart throwing device. It provides an extension for the arm which in turn allows for great leverage in the throwing thrust. Still in use among the aboriginals of Australia.

[89]Conversation in the writer's home, September, 1962.

throughout the focus, musical instruments and musicological evidence is obvious in some of the cave murals. There is every reason to suspect that some of the objects that have been identified as atlatls may be Bull Roarers (Chiringas) similar to those used by the Australian aboriginals. Artifactual evidence has just recently confirmed this theory with the identification of two specimens from Horseshoe Cave(VV171). Both of these specimens are of shell and seem to conform to the classic shape of chiringas. Until the discovery of these artifacts, artifactual support of this theory had not been available with the one exception of a problematical specimen of thin limestone slate.

Dr. J. E. Pearce[90] believed that the design patterns which are geometric (painted pebble design) and well represented throughout the focus and similar to design patterns often found on the Chiringas of Australia.

> . . . Professor J. E. Pearce of The University of Texas found them [sic] to be similar to the chirungas of Australia.

One fact overlooked at Panther Cave(VV83) by previous investigators is that this cave was obviously an important

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[90]Herbert C. Taylor, op. cit., p. 81.

ceremonial site. The dominant theme of hunting is shared with depictions of war, natural life scenes, ceremonialistic rituals, and psychological functions within the society.

> As we have already indicated these panels are dominated by human figures in what appears to be ceremonial poses. These human figures are accompanied not only by weapons and animals, but also by representations of plants, insects, and unidentifiable objects from their physical environment. With the wide range of interest indicated in these drawings, it would seem unwise to view the Pecos Style drawings solely as a result of sympathetic hunting magic. We would rather suggest that these paintings probably served a wide variety of religious, social, and psychological functions within the society which produced them. Their sophistication and concern with design indicates a certain element of pure art for art's sake, which is present to one degree or another in art, regardless of time.[91]

To further substantiate the theory that this site was primarily utilized for ceremonies, the absence of a significant deposit and talus slope which might be expected in proportion to the size of this cave is evident.[92]

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[91]Gebhard, op. cit., pp. 44-45.

[92]In July, 1959, the writer spent several days at this site in an effort to determine the extent of the deposits and to study the paintings. It was determined at this time that the deposits were not significant although surface collecting produced three incised beads and a green colored mineral rock that had been incised extensively. This type of rock, which has not been analyzed, is not native to the study area and is not found in the river wash of the Rio Grande which is in close proximity to the cave. The mineral rock is in possession of Mrs. Mylbra Auld of La Joya, Texas.

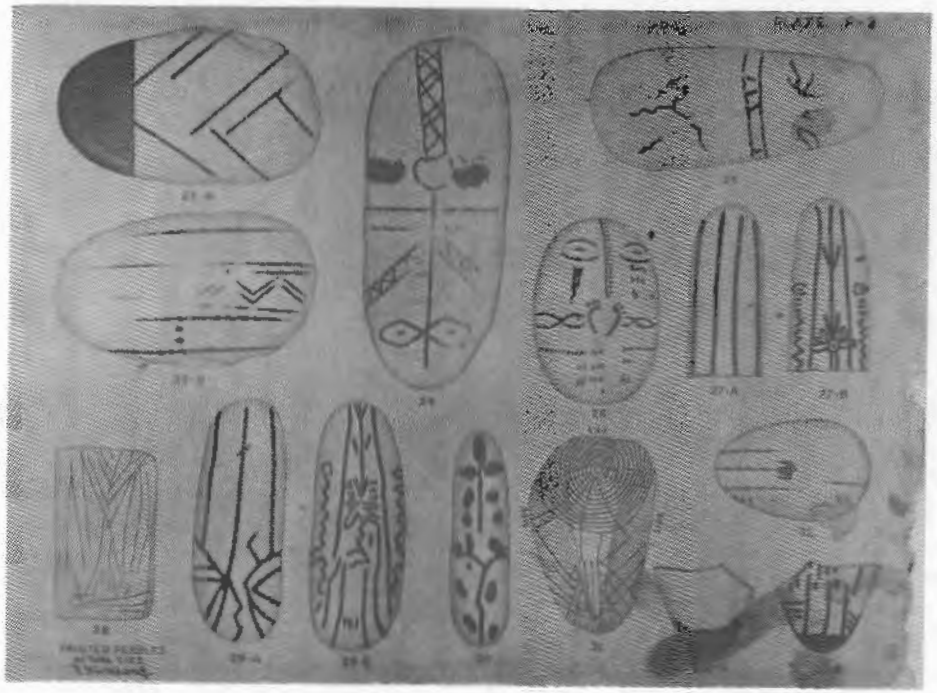

Figure XIII. Painted Pebble Art.
(From the collection of W. E. McCarson.) Reproduced by Forrest Kirkland.

Notice the anthropomorphic representations on Specimens 24, 29-B, 27-B, and 26. Typical geometric design elements of the chiringa are not present with the possible exception of Specimen 23 (A-front; B-back).

TABLE VI

PICTOGRAPH SITES CONTAINING MUSICOLOGICAL EVIDENCE

Evidence	Site	Remarks
Figure holding Bull Roarer	Panther Cave (VV74)	May be an Atlatl
Chiringas (Painted Pebble design)	VV81	Paintings similar to those found on the Bull Roarers of Australia and found on Pebbles excavated from the caves. No anthropomorphic figures present.
Single Dancing figure	VV73	
Dancing Warriors	VV74	
Figure holding Basket Type goard Rattle	VV180	
Figure holding Bull Roarer	Eagle Cave (VV167)	Problematical

Common throughout the area and present in most of the sites visited are ladder like design drawings that may be related to the musical scraper impathetically. When viewed, one may conceive in profile perspective the musical scraper. Although this is pure conjecture on the part of the researcher, the possibility does exist that some suggestion of fertility rites or phallical connotations that are associated with the musical scraper may be the intended theme of these depictions.

Although all of the major pictograph sites were visited in order to obtain information about the paintings, the researcher must admit that an inadequacy of sufficient knowledge concerning primitive paintings has not permitted a more extensive evaluation of the pictographs. Nevertheless, this admitted inadequacy does not restrain nor refute in the least the writer's belief that the pictographs have indicated at several of the sites a concern for ceremonialism which establishes a basis for musical endeavor. The obvious dancing scenes, however, are irrevocable evidence of considerable musicological significance.[93]

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[93]Howard D. McKinney and W. R. Anderson, Music in History, The Evolution of an Art (New York: American Book Company, 1949), p. 26.

In the exhaustive survey of Texas pictographs and petrogliphs by A. T. Jackson,[94] which recorded sites in 44 counties of the state, it was established that 24 per cent of the pictographs in Texas are located in Val Verde County, most of these within the study area.[95] There were a total of 195 sites recorded in the survey but only one site of the petrogliphic type was noted for Val Verde County, which is not correct.[96]

The Petrogliphs

Petrogliphs are not as well distributed throughout the study area as are the pictographs. This is a puzzling fact which has not as yet been explained, for within the area, only a few miles from the mouth of the Pecos River

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[94]A. T. Jackson, Picture Writing of Texas Indians, The University of Texas Publication No. 3809, Austin, 1938, p. 3.

[95]From the advice of W. E. McCarson, Jr., who conducted Mr. Jackson on this reconnaisance of the area and the writer's own knowledge of the area.

[96]There are several other petrogliphs within the area which were overlooked in this survey and are known to the writer although they contain no evidence of musicological significance. There are undoubtedly other petrogliphs within the area that are not known at the present time.

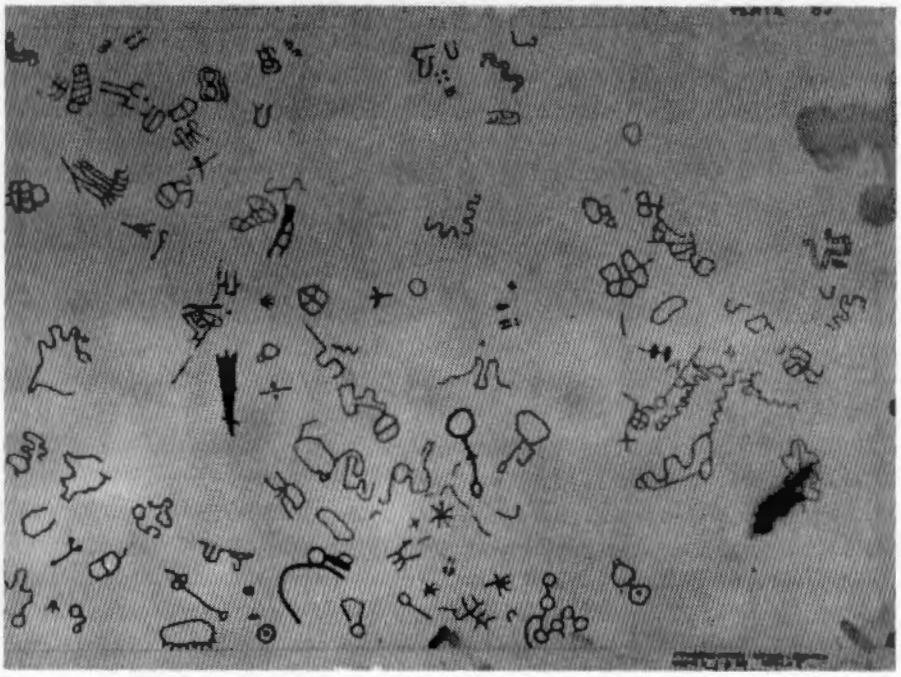

Figure XIV. Petrogliphs.

From the major site on the Martin Ranch, Val Verde County, Texas.

resides an outstanding petrogliph site comprising several acres of exposed limestone which contains 161 design elements.[97]

> This is an outstanding petrogliph site, with the designs pecked into an extensive flat stone surface on a level with the surrounding land. The location is adjacent to a mesa and on the clean horizontal rock surface of the third terrace of the present stream channel. The surface of the partially stone-covered terrace slopes gently from the mesas to the north and east toward the next lower terrace.
>
> Occasionally heavy rains cause water to flow over the petrogliphs, resulting in a certain amount of erosion. Lichens also grow in the pecked lines and cause some damage to the stone.[98]

These petrogliphs assume the posture of later design patterns in the opinion of W. E. McCarson[99] of Comstock who has visited the site on numerous occasions. Although in some respects these design patterns resemble the early Pecos River style 1 of Gebhard's[100] chronology, the writer

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[97]Jackson, op. cit., p. 201.

[98]Ibid., p. 199.

[99]Personal conversation with McCarson, November 1, 1962.

[100]Gebhard, op. cit., p. 25.

must agree with McCarson's observation that they are primarily the product of a later cultural horizon within the area. This is quite apparent by the predominance of geometric design elements which, according to Jackson,[101] represents 70 per cent of the design elements at the site. The geometric elements are not characteristic of the early style.

Unquestionably the petrogliphs suggest a certain amount of ceremonialistic posture by virtue of the quantitativeness of design elements present; but, as yet, little musicological evidence appears to be noted at this site. The Painted Pebble design elements are rather well represented here, and may represent symbolically the chiringas which Dr. Pearce[102] believed the painted pebble designs inferred.

One significant, yet curious, aspect that has inconvenienced the writer of this thesis, is that the design elements which inferentially point to the churingas of the Australian aborigines are not present on the specimens found at Horseshoe Cave(VV171). Also, the classic

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[101]Jackson, op. cit., p. 201.

[102]Herbert C. Taylor, op. cit., p. 81.

Figure XV. Mr. Forrest Kirkland painstakingly reproducing the paintings of primitive artists of the Pecos River Focus. Accompanying Mr. Kirkland is W. E. McCarson. The year is 1938.

fish-shape of these specimens is emphasized much more, and even exaggerated perhaps, than the wooden specimens commonly associated with the Australian bushmen. One might assume that the two specimens from Horseshoe Cave(VV171) are not churingas; or again, one may be prone to accept that the design elements do not symbolically represent churingas. At the present time, however, it is apparent that both types of instruments may be rather well distributed throughout the area, or at least were in use by the primitives at the time of their occupancy. Until archeological recovery can produce specimens which bear the painted or incised geometric design elements, we must accept the fact that their existence is only problematically inferred.

C H A P T E R I V

THE STUDY

Introduction

The purpose of this study, as stated in Chapter I, was to:

1. Collect information through the means of personal investigation of a considerable portion of the archeological sites of the Pecos River Focus.
2. Examine the literature related to the archeological and anthropological investigations within the Pecos River Focus.
3. Study the musical instruments recovered in order to determine the cultural affinities and affiliations, if any, of the Pecos River Focus.
4. Examine the pictographs and petrogliphs of the area in order to determine what, if any, implications these may have concerning the musical development of these primitive people.

Factual data concerning the instruments were acquired by personal examination of each instrument, where possible, recovered by the expeditions of The University of Texas, Texas Memorial Museum, and Witte Memorial Museum

since the major excavation by J. E. Pearce and A. T. Jackson of the diagnostic Fate Bell Shelter(VV74) in 1932.[103] Additional information was acquired by examination of other primitive instruments from East Texas and southeastern New Mexico. Photographs of instruments from Mexico, within the Mayan and Aztec cultures, were examined. An extensive survey of published reports with accompanying lists of artifacts from all of West Texas was made as well as a survey of the Mexican literature concerning instrument recovery and correlated pictographs. The Mexican literature largely was in the form of bulletins of the Instituto Nacional de Anthropología e Historia and the Museo Nacional, both of Mexico City.[104]

Consultations were held with authorities in both musicology and anthropology concerning the problematical use of the instruments in the various ceremonies of the primitive society. Three of the instruments recovered from archeological excavations in East Texas were studied in order to establish differences and similarities of like

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[103]Pearce and Jackson, op. cit., pp. 1-2.

[104]These Mexican materials are included in the Bibliography. See p. 194.

specimens from the Pecos River Focus. Correspondence with Dr. Vicente T. Mendozo[105] of the Museo Nacional was of considerable assistance in obtaining an insight into the distribution of similar primitive instruments throughout the Latin American countries.

Symbolical Significance of the Early Instruments

To what extent the people of the early phase of the Pecos River Focus were concerned with music activities is difficult to determine. The many caves and shelters have yielded only a few instruments which attest to some concern with music activities. However, investigations in the future may prove to be much more productive in this regard.

It must be understood from the beginning that primitive music endeavors are not the product of a well-organized art which is steeped in aesthetic content. Sachs[106] says there is no aesthetic content in primitive music and that this is particularly obvious in the field

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[105]Correspondence with Dr. Mendoza, September, 1962.

[106]Curt Sachs, Our Musical Heritage (New York: Prentice-Hall, Inc., 1948), pp. 3-4.

of its instruments. The instruments serve magical rather than musical aims:[107]

> The instruments, in all their properties, are meaningful, not attractive, or beautiful. Their significant sounds, as soft or strong or muffled or shrill; their outer shapes, as round or pointed; their colors, as lifeless white or bloody red; their very motion, as striking, stamping, scraping or rubbing--they all entangle the early instruments in an intricate maze of pre-musical, magical connotations, far from aesthetic pleasure.[108]

The various instruments produce pitches which are indefinite and would not necessarily be pleasing to the ear. Nevertheless, they were important in the evolution of western music as we know it today, and deserve a thorough and exhaustive study regardless of the lack of a sophisticated and organized art.

The symbolic or meaningful significance of the instruments according to Sachs[109] is as follows:

1. RATTLE. This instrument is conceived to have possessed magic power. Whether the sound or the symbolism of the instrument had the magic

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[107] Ibid.

[108] Ibid.

[109] Curt Sachs, The History of Musical Instruments (New York: W. W. Norton and Co., 1940), pp. 26-59.

connotation is not known. The goard rattle is an instrument associated with shamanic rituals, however, except in shamanic rituals the rattle is shaken by women.

As a women's instrument the rattling vessel has entered the nursery and lives on as a toy given to babies.[110]

2. THE RIBBON REED. This instrument was also associated with magic powers.

In Melanesia the initiated boys blow the grass-blade to keep away the women. The Taulipang in Guiana believe that if this blade is taken from a certain kind of reed rain will come, and in Madagascar it is strictly forbidden to make a ribbon reed from a rice stalk before getting in the harvest lest hail should be attracted.[111]

3. RUBBING TORTOISE SHELL. This is a highly secret instrument that again is associated with magic.

Central and South American Indians take an empty tortoise shell, stop up the tail hole with glue and rub the projecting end of the shell over the sweaty palm of the hand. This is a secret instrument; uninitiated people dare not see it.[112]

4. BULL ROARER. This instrument's sound signifies the voice of an ancestor or some departed friend.

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[110] Ibid., pp. 27-28.

[111] Ibid., p. 38.

[112] Ibid., pp. 38-39.

> The basis for such a belief is the conception that man can act upon one part of the world by utilizing another part, which then in magic belief becomes interchangeable with the first.[113]

The elliptical shape of the instrument, which is basically fish-shaped, also contained meanings or associations with fertility, at least on some occasions.

> The fish, for example, often represents the idea of fertility, owing to its copious roe. Far from being a mere symbol, as it would be in modern civilization, it embodies the fertilizing power. Thus, a bull-roarer with its elliptic fish shape, serrated borders like fins and occasional scale design, signifies procreation. To intensify this meaning, the bull-roarer if often painted red, the color of blood being the color of life.[114]

5. THE MUSICAL SCRAPER. This instrument was conceived as a charm of a phallic significance to arouse love.

Bone scrapers were associated both with erotic rituals and funeral ceremonies, for funeral ceremonies were not an expression of mourning but a magic rite insuring life and rebirth.

6. FLUTE. Flutes are phallic symbols also.

Primitive man cannot overlook the resemblance between a pierced straight instrument and the penis;

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[113] Ibid., p. 42.

[114] Ibid., p. 42.

even in modern occidental slang the penis is designated by flute names.[115]

Fertility and rebirth connotations are obviously the significant associations made to the flute. Again, like the musical scraper, the flute is used in funeral rites, either in the burying ceremony or as a gift to the dead.

Archaeologists often find a flute at the side of a mummy or skeleton when excavating tombs, and mistakenly believe that they have uncovered the remains of a musician, whereas the flute was probably placed there because it was a life charm.[116]

7. THE MUSICAL BOW. The hunter's bow which this instrument resembles in appearance is not, contrary to popular belief, associated with hunter's beliefs and ceremonies, according to Sachs.[117]

With the Cora in Mexico, the calabash bowl on which the bow rests is a sacred emblem of the Goddess of the earth and moon; among many tribes only the women play it; in Rhodesia it is the instrument played at girls' initiations; and the

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[115] Ibid., p. 44

[116] Ibid., p. 45.

[117] Among present-day primitives, upon which Sachs bases his information, this is quite valid and undoubtedly beyond reproach. However, such a dogmatic statement may be entirely erroneous, especially in light of the overwhelming emphasis placed on hunting in the primitive society of the early Pecos River Focus.

> Washambala in eastern Africa believe that a man cannot get a wife if a string of the musical bow breaks while he is making it. In a tale of the East African Wahehe, a man goes on a journey with a girl, has her drink from a brook and breaks her neck when she is bent over the water. At once she is transformed into a musical bow; the back bone becomes the wood, her head the resonator, and her limbs the strings. Similar stories are found in northern mythology.[118]

The Instruments

The discussion of the following instruments includes those which have been identified as instruments and those which are problematical. In each instance, where possible, the investigator has made every effort to examine personally the specimen in question. Some of the specimens which have been reported are no longer in the collections of the various institutions, and others have been destroyed or misplaced through carelessness. Fortunately, however, those instruments that have been lost have been photographed or drawn to scale by competent reporters which has made the task of this paper undeniably easier.

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[118]Curt Sachs, The History of Musical Instruments, p. 56.

The instruments recovered from the excavation of the Fate Bell Shelter(VV74) by The University of Texas expedition of 1932 are the following:

Two Cylindrical Flutes of Bone

Two cylindrical flutes of bone were recovered from this excavation although one specimen is not in the collection of artifacts at The University of Texas. According to the report of this excavation by J. E. Pearce and A. T. Jackson[119] one specimen was complete when found and the other was a fragment.[120]

> A bird bone bearing a drilled hole suggests its use as a whistle or call.[121]

There is very little possibility that both specimens are whistles because of the shape. Compared with whistle specimens of the archaic period in Mexico it is at once obvious that these are not whistles because of the conical shape of the Mexican whistles as opposed to the

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[119]Pearce and Jackson, op. cit., p. 134.

[120]Ibid.

[121]Ibid., p. 51.

cylindrical shape of the specimens from the Fate Bell Shelter(VV74).

> Las piezas reproducidas en las ilustraciones dan una idea de su forma, pudiéndose apreciar en uno de ellos la figura de uno de esos pajarillos que todavía hacen los artifices indígenos; del exámen de ellos parece que algunos estuvieron adheridos a otra pieza y que fueron arrancados o que se quebro la pieza de la que formaban parte. Uno de ellos es muy intersante por su forma; es una figurilla de animal, toscamente modelada, en la que se observan la cabeza y el torax con las dos extremidades delanteras, lo que revela un concepto estético definido, pues agregaban a la belleza que encontraran en el sonido que producía la de la plástica escultórica del objeto, un deleite de la vista sumado a un goce del oido.[122]

The whistles pictured in the Saldivar book[123] are interesting in that some appear to have the shape of animals or birds. The cylindrical instruments from the Fate Bell shelter, however, resemble those flutes manufactured by Indians of East Texas during the Neo-American phase with the exception that the later instruments usually were transverse flutes (see Figures XXIV and XXV). The one fragment of a bone flute studied by the researcher contains only one finger hole.

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[122]Gabriel Saldivar, Historia de la Música en México (México, D.F.: Publicaciones del Departamento de Bellas Artes, 1934), pp. 6-7.

[123]Ibid., p. 7.

Strung Rattles

> At a depth of 42 inches, 391-3 1/2, was a cache of five sets of hinged mussel shells, each set pierced with a hole 1/8 inch in diameter. The hole in each valve was located near the edge and 1/2 inch below the hinge [sic]. The shells were badly burnt, and two of them crumbled when touched. The others were immediately treated with a preservative of celluloid cement, amyl acetate, and acetone. The position of the shells when found would seem to indicate that they were originally strung, perhaps for use as rattles. Any cord or thong that may have been through the holes would, of course, have been consumed by the fire that charred the shells.[124]

Reed Flute or Whistle

> There were two possible reed drills and what may have been a whistle.[125]

Upon examination of the specimen in question it seems that there can be little doubt that the artifact is a flute or whistle. At least the cylindrical shape of the tube would imply that the specimen is more flute than whistle although only a slight audible sound could be produced.

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[124]Pearce and Jackson, op. cit., p. 64.

[125]Ibid., p. 129.

Musical Scraper

> A fragment of a possible "rhythm stick" of soft wood came from a depth of 7 inches. It is 3-1/2 inches in length and 1/2 of an inch in diameter. The notches, of which there are twelve, are about 1/4 of an inch apart, 1/8 of an inch deep, and extend half way around the stick.[126]

This specimen could not be located in the collection at The University of Texas although it is quite safe to assume from the description that it is a musical scraper.

Problematical Instruments

> Seven pieces of reed (Arundo donax) that came from the debris of the upper level may have been used as containers. Five of them have an opening at one end only, the septum at the bottom of the open joint not having been punctured. Two of the reeds are open at both ends, these two, and one of those having a closed end, have smoothly cut edges and show signs of use.[127]

Only two of these specimens could conceivably be considered a flute. Not all of the specimens could be located in the collection, however, those which are missing may have been instruments that were not finished products.

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[126] Ibid., p. 128.

[127] Ibid., p. 128.

The two specimens that were studied, as well as the other tubes of cane, may have been intended for assemblage and use as a Panpipe.

Instruments recovered from the Woolsey[128] excavation of 1936 at Horseshoe Cave(VV171) on Cow Creek were outstanding. Unfortunately complete data on cultural stratigraphy and association were not obtained and have not been published. However, the study by C. T. Butler[129] of the cultural remains recovered has provided the writer with an insight into the work done at this shelter, especially in regard to the cultural material remains that were excavated.

Bull Roarers

These two specimens are undoubtedly the most exquisitely carved artifacts from the study area seen by the writer. Both are elliptically shaped with serrated edges which resemble the fish shape often associated with

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[128]A. M. Woolsey, "Horseshoe Ranch Cave," unpublished manuscript, Department of Anthropology, The University of Texas, Austin, 1936.

[129]C. T. Butler, "A West Texas Rockshelter," unpublished Master's thesis, The University of Texas, Austin, 1948.

fertility or life and rebirth connotations. There can be no doubt as to the authenticity of these two specimens although they have not been identified as chiringas prior to the writing of this report (see Figure XXI). Both specimens were found in association with a child burial (see Figure XVIII) which also contained a number of burial offerings including two pan pipes and two shell pendants. The shell pendants, one of which is diamond shaped, may be chiringa but until more study is given these objects, only one can be considered a problematical instrument.

Panpipes

These two instruments, previously mentioned, are extremely interesting in that they are the only tied flutes which are known to have been found in the area. Also, like the chiringas, the pan pipes were found in association with the child burial. It is possible that the four tubes which are tied in pairs may have been a part of a larger assembly of pipes and there is some indication that this was the intended purpose. Unfortunately these instruments have been studied only through the photographs because the instruments and burial, with the exception of the chiringas

previously mentioned, are no longer in the collection of the Department of Anthropology at The University of Texas.

Problematical Friction Instrument

A tortoise shell or friction drum instrument was found in a medicine bundle or Shamans bag in Horseshoe Cave(VV171). As this was considered a secret instrument by the primitives it is entirely possible that this instrument was used or was intended for use in some ritual of a highly secretive nature. The Shamans bag was with the collection of artifacts from this excavation and was studied by the investigator. Close attention was given to the projecting end of the shell which would have been exposed to repeated rubbings; however, no apparent smoothing could be detected due to the broken and fragmented nature of the shell.

This instrument is classified as problematical only because of the unique circumstances of its provenience and the presumed function of such an artifact within shamanic rituals. It becomes obvious that a positive identification of such an instrument is next to impossible without more evidence which would testify to the artifact actually

having been used. The shell itself hardly qualifies as an artifact with the exception that it had been placed in the bag. It must be admitted without reservation, however, that the shell had some significance which very likely may have been that of a musical instrument.

Two caves that were excavated by the Texas Memorial Museum produced instruments. At Pelote Cave(TMM1735)[130] a curious musical scraper was found that had been used as a fire stick as well as a musical scraper. Muertos Cave (TMM1209) also contained a musical scraper which was found by the writer in a glass container in the artifactual remains that had been stored and catalogued by the Department of Anthropology at The University of Texas.[131]

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[130]The letter prefix and numbers which accompany the name of this site belongs to the Texas Memorial Museum system that is still in use by that institution. Whenever possible, however, it is desirable to assign a state, county, and site designation under the new national system.

[131]Both of these caves, Pelote Cave(TMM1735) and Muertos Cave(TMM1209) were apparently overlooked by the survey party of 1958. It has been possible to establish the location of Pelote Cave(TMM1735) on the V. Friedrich Ranch and Muertos Cave(TMM1209) on the Jess Cox Ranch. Both sites were excavated by Carl Chelf in January of 1955.

The archeological explorations of the Shumla Caves in 1933 by the George C. Martin[132] expedition resulted in the discovery of several outstanding musical instruments. Nine caves were investigated in the Shumla region immediately west of the Pecos River but due to inadequate reporting it is impossible to relocate all of these sites.[133] All but one of the following specimens are on exhibition at the Witte Memorial Museum in San Antonio.

Strung Rattles of Deer Scapulae

> Five deer scapulae from the Shumla Caves indicate use in groups as rattles. Three such scapulae are tied together with fiber cord. . . . The joint of a fourth scapulae is encircled by a cord and may originally have been attached to the other three. Martin shows four scapulae joined by cordage, presumably the same four described here. A fifth scapula has a coil of untwisted fiber encircling the joint.[134]

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[132]George C. Martin, "The Big Bend Basket Maker," Big Bend Basket Maker Papers, No. 1, Witte Memorial Museum, San Antonio, 1933.

[133]Ibid.

[134]Mardith K. Schuetz, "An Analysis of Val Verde County Cave Material: Part II," Bulletin of the Texas Archeological Society, 31:194-195 (1961).

Bone Musical Scraper

A curved section of bone, having a length of approximately 14 cm., is notched on the concave edge and probably was used as a musical rasp.[135]

Rasping Sticks

Two fragmentary rasping sticks were recovered from the Shumla Caves. One is a round twig (diameter 6 mm.) with wide notches cut into it. The other is a flattened piece of wood (width 9 mm.) with notches (width 3 mm.) cut into it at intervals of about 2 mm.[136]

Atlatl

One distal fragment, with a length of 23.75 cm., has a width of 1.2 cm. and a thickness of approximately 1.6 cm. In cross-section it is keel-shaped, and the groove for placement of a dart is 9.5 mm. wide and only 1.2 mm. deep. The specimen is equipped with a carved hook that will engage either a conical or a widely grooved nock of a dart. The under side has a series of 19 deep notches.[137]

This atlatl fragment was a utilitarian tool which served

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[135] Ibid., p. 195.

[136] Ibid., p. 187.

[137] Ibid., p. 171.

the function of a weapon as well as that of a musical instrument. It is the most outstanding specimen of a musical scraper examined in pursuance of this study.

Bow-like Implements

> Five artifacts, all from the Shumla Caves, have the appearance of miniature bows.[138]

These miniature bows were examined closely in an effort to determine if they had been intended for use as musical bows. It is the writer's opinion that at least four of the bows could have been made for the express purpose of utilizing them as musical instruments. In view of the unlikely use of these implements as bows for the purpose of shooting arrows in order to obtain game, and the presumed absence of other evidence such as arrow points this is a logical conclusion. It is quite likely, however, that these bows came from the upper levels of a shelter which represents the late archaic or early Neo-American phase of occupation. However, stratigraphic data are not available for these discoveries and consequently it is impossible to substantiate this conclusion.

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[138] Ibid., p. 177.

Stone Pendant

An oblong slate artifact recovered from Jacal Canyon, which bears one drilled hole, may have been utilized as a bull roarer. Although bull roarers are commonly made of wood or shell it is nevertheless entirely possible that this artifact may have been used for this purpose. The shape of this artifact of stone is that of most bull roarers found among the modern primitives of Australia, but it is not as elliptically or "fish shaped" as the two specimens and one problematical specimen recovered from Horseshoe Cave(VV171).[139] The thinness of the slate object indicates that the object would weigh only a few ounces which would make the spinning of the instrument about the head a feasible maneuver without hazard.[140] The object was found in association with a burial.

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[139]The shape of this object of stone was compared with bull roarers on exhibition at the Texas Memorial Museum in August, 1962. Also, the general shape agrees with Sach's drawing in his book, The History of Musical Instruments.

[140]This object was only observed on display at Witte Memorial Museum. Time did not permit the removal of the specimen from the display case for inspection.

From Eagle Cave(VV167) Davenport[141] reported the finding of a sandstone shaped cone which conceivably could have been used as a trumpet.

> A fragment of red sandstone that had been shaped into a cone was found in 4A. This fragment is four inches long and two inches in diameter. A hole one-half inch in diameter has been scraped out through the center. This somewhat resembles a cloudblower for fire carrier although the center hole seems much too small and there is no indication of it ever having been used for this purpose.[142]

Also from this same excavation were five shells which had been drilled for suspension, and obviously these specimens were designed to be used as strung rattles.

> Very few ornaments of any kind were found in Eagle Cave. Five were of shell drilled for suspension, one of which has a scratched design on the inner surface.[143]

Schuetz[144] describes one of these shells:

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[141]Field archeologist in charge of the investigation at this cave which was sponsored by the Witte Memorial Museum.

[142]J. Walker Davenport, "Archaeological Exploration of Eagle Cave, Langtry, Texas," Big Bend Basket Maker Papers, No. 4, Witte Memorial Museum, San Antonio, Texas, 1938, p. 11.

[143]Ibid., p. 14.

[144]Schuetz, op. cit., p. 203.

> This specimen has an oval outline and is perforated at one end for suspension. It has a length of 3.1 cm. and a width of 2.5 cm. The shell is rather thick and is clearly foreign to the Pecos area.[145]

From VV39, a large rockshelter located in Satan Canyon, a short distance from the Devils River, a fragment of a wooden flute was recovered. There is no information available as to who made the discovery or when the instrument was found. Consequently, there is also no stratigraphic data to be obtained concerning the instrument. The writer found the fragment in a drawer containing material from the Pecos River Focus at The University of Texas.

The instrument is a reed tube (Arundo donax) of 5.6 cm. in length and 0.6 cm. in width, measured at both orifices. There is a small hole drilled approximately one inch away from one end which is possibly a single finger hole. There are no additional refinements such as incising, painting, or excessive hand rubbing although the instrument shows considerable wear.

At the Texas Memorial Museum in Austin an exceptionally fine specimen of a musical scraper is on display.

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[145] Ibid.

Again there is no information available concerning the recovery of this instrument, however, it was possible to determine that the specimen was recovered from the Pecos River Focus area.[146] The scraper is 14.5 cm. in length and 3.3 cm. in width, with deeply grooved notches on one face (see Figure VII). Although the specimen has been burned and fire hardened it is possible to see that considerable smoothing or hand rubbing had been administered to the instrument.

Coontail-Spin(VV82) shelter produced a portion of a gourd rattle which was crushed beyond reconstruction. There were evident at the time of discovery several small pebbles that obviously had been placed inside the gourd. The gourd fragments and pebbles were examined on a one-quarter inch mesh screen after removal from the midden by the writer.[147] Although other gourd fragments have been found by investigators in the area, this is the only known gourd rattle to be taken in situ from the Pecos River Focus.

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[146]An interview with the archeologist in charge of the collection at the Museum. Miss Dee Ann Suhm assured the writer of the instrument's authenticity and provenience.

[147]Mrs. C. K. DeBusk and W. E. McCarson, Jr., of Comstock were present at the screen and assisted in the determination of the probable use of this artifact.

In the spring of 1959 the writer and W. E. McCarson, Jr.,[148] of Comstock recovered a small musical scraper from the School Cave(VV68). This shelter, which is located in a canyon adjoining Deadman Canyon was excavated using the layer system although the cave had been previously engineered for the grid system. One major trench was cut from the outside talus slope to the rear wall of the cave, maintaining in the initial digging a six inch vertical control. A minor trench was begun arbitrarily in the center of the cave and was continued to the back wall. Both trenches were connected; however, the instrument was discovered in the completion of the second trench near the back wall in the first six inches after removing the overburden. Other artifacts indirectly associated with the instrument were the Abasola, Uvalde, Frio, and Castroville dart points. Although the instrument was found near the surface it is quite possible that secondary deposition had taken place due to the unsettled composition of the upper zone.[149]

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[148]Amateur archeologist who perhaps is the most knowledgeable and experienced person acquainted with the archeology of the Pecos River Focus.

[149]Sheep are frequently found in this cave, and other animals such as goats and javelinas are in the habit of occupying the cave periodically.

During the years 1958 to 1961 the Fate Bell Shelter(VV74) was worked periodically by various members of the Val Verde County Archeological Society. Because of the enormous size of this shelter much surface area remained undisturbed following the Pearce and Jackson[150] excavation of 1932. However, the cave has been considerably destroyed for archeological purposes due to the lack of experience and often total disregard of controlled excavational techniques by the members of this group. In June, 1958, while working in a trench immediately north of the main University of Texas trench (Pearce and Jackson, 1933),[151] the writer found among the cultural debris of the upper level what appeared to be five ribbon reeds. Although the "split reeds" were considered artifacts no particular importance was attached to them and the former researcher simply threw them away in the screened waste material. Similar artifacts from several other sites have also been thrown away before and since this particular discovery because of the lack of information about them. It was not until June, 1962,

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[150]Pearce and Jackson, op. cit., p. 28.

[151]Ibid.

that the writer discovered through the literature[152] that these "split reeds" could actually be musical instruments of the primitive people. It is possible that many of these problematical instruments have been discarded by other researchers in the area.

In August, 1961, from the same shelter, a mussel shell rattle was recovered near the back wall (northwest corner of the cave) in association with a mass burial. The burials and mussel shell were occupying vertically a space from four to six feet deep in the midden. There were no more mussel shells present in the immediate vicinity of the burials, although it is significant to mention that this shell was resting quite close to the area in which Jackson[153] found the strung mussel shell rattles in 1932.

Javelina Cave(VV109) was partially excavated in August, 1959, by the joint efforts of The University of Texas, the Val Verde County Archeological Society, and the Texas Archeological Salvage Program. The archeologist in

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[152]Sachs, The History of Musical Instruments, p. 38.

[153]Loc. cit.

charge was Dr. Jeremiah Epstein of The University of Texas. Field data was compiled by this writer.[154]

A fragment of a bone flute or possibly a portion of a large bead was recovered from this site. The artifact does not bear a drilled hole and cannot be classified as a musical instrument, but it is nevertheless problematical and might be considered a flute if we accept the findings of Sachs.[155]

> Even the bone flutes blown by human victims about to be sacrificed as they climbed the steps of the pyramid, or by the doomed men accompanying the hearse of a prince, seem to have had no holes, as today the bone flutes of North American Indians rarely have fingerholes.[156]

One end of this problematical instrument had been shaved in an effort to reduce the thickness of the walls of bone. This curious departure from the normal manufacturing process for bone beads indicates that the artifact may not have been intended to be used as a bead and conceivably

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[154]A formal report of this excavation is in preparation by the writer for delivery to the Texas Archeological Society.

[155]Sachs, The History of Musical Instruments, p. 194.

[156]Ibid.

TABLE VII

Known Instruments Recovered From
The Pecos River Focus
(Problematical Instruments Not Included)

Instrument	Material of Composition	Dimensions	Additional Refinements
Flutes			
One cylindrical flute	Leg bone of a large bird	5.3 cm. in length	Hand smoothed
One cylindrical flute	Leg bone of a large bird (?)	No data	No data
Two Pan Pipes	Cane (Arundo donax)	Approximately 3-1/2 inches in length	Longitudinal incising on one specimen
One Reed Flute	Cane (Arundo donax)	6.0 cm. in length 0.5 cm. in width	None
One Reed Flute	Cane (Arundo donax)	5.6 cm. in length 0.6 cm. in width	None
Rasping Sticks or Musical Scrapers			
One Specimen	"soft wood"	3-1/2 inches in length, 1/2 inch in diameter	No data
One Specimen	Wood	10.5 cm. in length 0.8 cm. in width	Longitudinal incising and black paint
One Specimen	Wood	14.5 cm. in length 2.0 cm. in width	Was also used as a fire hearth stick
One Specimen	Wood	3.5 cm. in length	None
One Specimen	Bone	14.0 cm. in length	Hand Polished
One Specimen	Wood	23.75 cm. in length, 1.2 cm. in width. Thickness of 1.6 cm.	Atlatl hand-smoothed

Table VII - continued

Instrument	Material of Composition	Dimensions	Additional Refinements
One Specimen	Wood	6 mm. in diameter	No data
One Specimen	Wood	Width 9 mm., Width of notches 3 mm. Spaced at intervals of 2 mm.	No data
One Specimen	Wood	14.5 cm. in length 3.3 cm. in width	Hand rubbed
Rattles			
Five Strung Rattles	Mussel shell	Holes drilled in each 1/8 inch in diameter approximately 1/2 inch below the hinge	None
One Rattle	Mussel shell	Hole drilled 1.0 cm. from end. (Another hole attempted). 4.8 cm. in length, 4.2 cm. in width	Diagonal incising
Five Deer Scapulae Strung Rattles	Deer Scapulae	(The three scapulae that were strung when found) Scapula I-17.9 cm. in length, 10.5 cm. in width Scapula II-19.0 cm. in length, 8.0 cm. in width Scapula III-18.0 cm. in length, approximately 11.0 cm. in width	None
Five Strung Rattles	Mussel shell	(No data available except on one specimen) 3.1 cm. in length 2.5 cm. in width	None

Table VII - continued

Instrument	Material of Composition	Dimensions	Additional Refinements
Gourd Rattle	Gourd (Cucurbita)	(No data available) Gourd was approximately 10 inches in length and contained pebbles of an unknown amount.	None
Four Musical Bows			
Specimen No. 1	Hardwood (?) twig Cordage of two-ply S-twisted yarns twisted Z fashion into a strand	The straight distance from one slit to the other is 26.25 cm.	None
Specimen No. 2	Hardwood (?) twig Cordage of two-ply S-twisted yarns twisted Z fashion into a strand	31 cm. in length	None
Specimen No. 3	Two hardwood (?) twigs Cordage of two-ply S-twisted yarns twisted Z fashion into a strand	The distance between the two ends is 20.5 cm.	Binding of the two ends of the bow at the mid-section.
Specimen No. 4	Hardwood (?) twig Cordage of two-ply S-twisted yarns twisted Z fashion into a strand	No data	Y-shaped projections on the twig rather than splits to hold the cord.

Table VII - continued

Instrument	Material of Composition	Dimensions	Additional Refinements
Bull Roarers (Chiringas)			
Specimen No. 1	Mussel Shell ?	3 and 5/8 inches in length. 1 and 3/8 inches in width.	Crenulated edges. A portion of cordage still remaining in the drilled hole for suspension.
Specimen No. 2	Mussel Shell	Incomplete. 2 and 1/4 inches in length. 1 and 3/8 inches in width at the widest point.	Crenulated edges. Strong outline of the dorsal part of the fish.

might be a small flute, although it is not a complete specimen. A slight audible sound could be produced by blowing across either open end of the tube.

An incised stick of Sotol (Dasylirion texanum scheele) with very shallow incisions which outline the grooves of a possible musical scraper was recovered from Javelina Cave(VV1O9). The specimen is classified as problematical only on the basis that the grooves are not sufficiently deep to qualify it as a musical scraper. It is likely that the artifact may be in an unfinished state of manufacture as most certainly it resembles in every respect the typical musical scraper of wood from the area.

Both of the problematical instruments from Javelina Cave(VV1D9) were recovered from horizontal grid position N100-W145, and vertical position, Surface 0.5 feet. This places both of the artifacts near the mouth of this cave and quite close to the surface.[157]

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[157]The contour maps that were prepared during the excavation of this site were lost for four years; however, only recently they were found at the Department of Anthropology at The University of Texas.

The Bone Flutes

To the knowledge of this investigator, there have been only two bone flutes recovered in the study area. Both of these specimens, previously mentioned, were recovered in the original excavation of Fate Bell Shelter (VV74) by a group from The University of Texas in 1932. Unfortunately only one of the specimens has been studied, and this one is a fragment bearing one drilled finger hole. The other specimen is missing from the collection of this excavation at The University of Texas. No description of the missing instrument is given in the report of this excavation; however, it has been possible to determine that this instrument was of the same general type of manufacture as the fragment that was studied.[158]

The fragment that was studied had been mildly scorched, indicating that it was fire hardened. Whether or not the scorching was intentional or accidental can not be determined although it seems quite likely that the upper vegetal material, which is susceptible to burning, could

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[158]The missing instrument reported in the Pearce and Jackson report is included in Table V, Chapter II, of this thesis. It is listed as a complete specimen.

account for the scorching. A preservative has been put on the flute so that the general appearance of the instrument shows considerable handling and hand rubbing. The incline plane (beveling) effected in the preparation of the drilled hole is approximately at a 45 degree angle to the barrel and is also quite smooth which would indicate that the instrument had been used considerably. The length of the flute fragment is 5.3 cm. and the width is approximately 1.0 cm. although the width at the septum joint is considerably more.

The bone used in the manufacturing of this flute fragment is undoubtedly that of a large bird as the preference for this material exists throughout Texas and other areas of archeological endeavor in the Americas.[159] It is unlikely that this specimen could have been over an inch or possibly an inch and a half longer in length at the time of its manufacture. As a consequence there is every reason to suspect that the instrument only possessed the one finger hole. The septum had been completely removed at the joint.

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[159]Sachs, The History of Musical Instruments, p. 44.

Figure XVI. Flute.

This flute fragment is from the Fate Bell Shelter (VV74). Note the beveling effected in the single finger hole.

The Musical Scrapers or Rasping Sticks

The musical scrapers of the study area are made of wood although one specimen of bone was recovered in the investigations of nine Shumla caves by Martin[160] in the early 1930's. Rather elaborate specimens of bone have been seen in the Museo Nacional in Mexico City. One specimen in particular was made from the femur bone of a human and was quite ornately carved.[161] Specimens from the study area are grooved and notched in the same fashion, although as yet, no instruments which have been decorated or ornamented have been recovered.

The wood material used in the manufacturing of these instruments seems to be of a soft pithy type which lends itself to relatively easy carving. Two specimens, however, are made of what obviously appears to be hardwood. It is believed that the soft wood specimens are made of the stalk of the Sotol plant (Dasylirion texanum scheele) and that the hardwood specimens are possibly made of the

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[160] Schuetz, op. cit., p. 195.

[161] A photograph of this specimen may be viewed in the book by Samuel Marti, Instrumentos Musicales Precortesianos (Mexico, D.F.: Instituto Nacional de Antropologia e Historia, 1955).

mountain laurel (Kalmia latifolia L.), persimmon (Diospyros virginiana), mesquite (Prosopis juliflora) or any one of the large hardwood trees found along the perpetual streams of the region.

The musical scraper is rather widely distributed throughout Mexico and is still used in various forms by the modern primitives of that country. In the Aztec culture about the present capitol city of Mexico, Mendoza[162] states that this instrument is called the Chicahuaztli if it is made of wood, and Omichicahuaztli if it is made of bone. The common term of Raspador (rasper) is utilized by the Mestizo or Mexican people, although Guiro[163] is sometimes used because of the more extensive use of this refined gourd rasping instrument among modern orchestras and bands in the Latin American countries. This instrument, according to Sachs,[164] has world-wide distribution and belongs to his earliest man stratum. What type of implement was employed with the rasping stick is not known. Modern primitives in other parts of the world, and particularly those

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[162]Personal correspondence, September 8, 1962.

[163]Saldivar, op. cit., p. 23.

[164]Sachs, The History of Musical Instruments, p. 63.

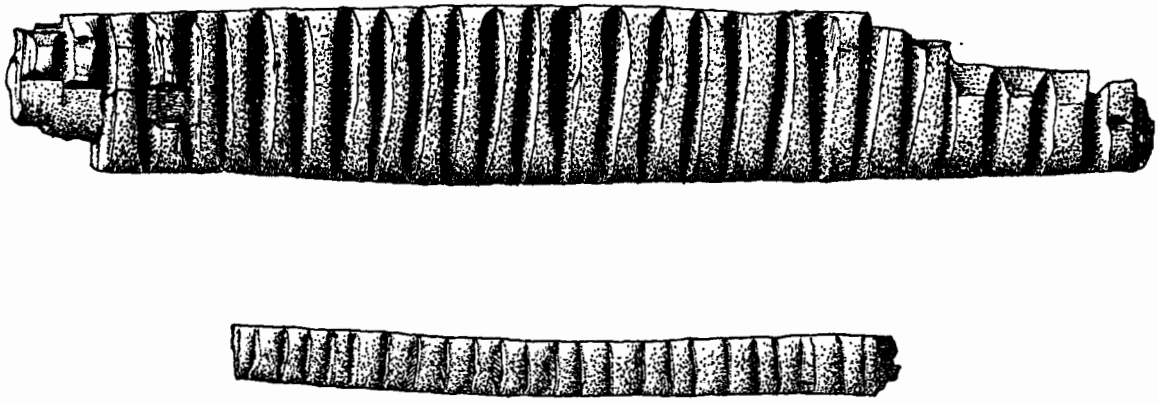

Figure XVII. Musical Scrapers of the Study Area.

Top: Musical scraper of wood from the Pecos River Focus on exhibition at the Texas Memorial Museum.

Bottom: Specimen recovered by the writer from the School Cave (VV68).

in Mexico, however, seem to prefer a small, rounded, smooth twig, and it is quite likely this same preference existed among the primitives of the early Pecos River Focus. It is possible, however, that shells, stones, bones, or other materials could have been used in order to achieve certain pitch requirements which the performer desired.

It is incorrect to refer to this instrument as a scraper as this does not impart any significant meaning and is very confusing to the archeologist who is acquainted with another tool by the same name. A core or flake flint tool designed by the primitives for the express purpose of scraping hides of freshly killed animals is known as a scraper. For purposes of this paper the term musical scraper or rasping stick is used, although in the early archeological literature[165] of the area the term rhythm stick was frequently associated with this instrument. At the present time this instrument appears to be the most well represented musical instrument of the Pecos River Focus although investigations in the area are only a minute sampling of the vast resources.

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[165]Pearce and Jackson, op. cit., p. 128.

TABLE VIII

Provenience of Known Instrument Recovery
Within the Pecos River Focus
(Problematical Instruments Not Included)

Instrument	Date of Recovery	Site Number or Location	Remarks
One cylindrical flute	October 20, 1932 to November 18, 1932	Fate Bell Shelter (VV74) Seminole Canyon	No stratigraphic data available
One cylindrical flute	October 20, 1932 to November 18, 1932	Fate Bell Shelter (VV74) Seminole Canyon	No stratigraphic data available
Two Pan Pipes	1936	Horseshoe Cave (VV171), Cow Creek near Comstock	No stratigraphic data available although both specimens were found in association with a child burial
One Reed Flute	October 20, 1932 to November 18, 1932	Fate Bell Shelter (VV74) Seminole Canyon	Debris of the upper level
One Reed Flute	Not Known	VV39 in Satan Canyon	No stratigraphic data available
Rasping Sticks or Musical Scrapers			
One Specimen	October 20, 1932 to November 18, 1932	Fate Bell Shelter (VV74) Seminole Canyon	Recovered from a depth of 7 inches
One Specimen	May, 1959	School Cave (VV68) in a tributary canyon of Deadman Canyon	Recovered from level 1 (6inches) after the removal of an excessive overburden

TABLE VIII - continued

Instrument	Date of Recovery	Site Number or Location	Remarks
One Specimen	1954 or 1955	Muertos Cave (TMM 1209). Jess Cox Ranch on the Rio Grande	No data available
One Specimen	1954 or 1955 ?	Pelote Cave (TMM 1735)	No data available
One Specimen	June, July, and August, 1933	From one of nine Shumla Caves	No data available
One Specimen	June, July, and August, 1933	From one of nine Shumla Caves	May have been a gift to Witte Memorial Museum by Guy Skiles of Langtry*
One Specimen	June, July, and August, 1933	From one of nine Shumla Caves	No data available
One Specimen	June, July, and August, 1933	From one of nine Shumla Caves	No data available
One Specimen	Not known	Not known except that it is from the Pecos River Focus	No data available

*Martin reports in Big Bend Basket Maker Papers No. 2, that this particular artifact was given to the Southwest Archeological Society, Witte Memorial Museum, by Mr. Guy Skiles of Langtry. The artifact is in the Shumla collection and was recently reported as an artifact that may have been recovered by the Martin expedition. In a personal interview with Mr. Skiles it was possible to determine that the distal fragment of an atlatl was given to Martin at about the time in question. Mr. Skiles was unable to remember the exact cave from which the artifact was removed except that it was near Langtry and not from any of the Shumla Caves.

Table VIII - continued

Instrument	Date of Recovery	Site Number or Location	Remarks
Rattles			
Five Strung Rattles	October 20, 1932 to November 18, 1932	Fate Bell Shelter (VV74) Seminole Canyon	Recovered from a depth of 42 inches
One Rattle	August, 1961	Fate Bell Shelter (VV74) Seminole Canyon	Four to six feet deep in the midden.
Five Deer Scapulae strung rattles	June, July, and August, 1933	From one of nine Shumla Caves	No data available
Five strung Rattles	February and March, 1936	Eagle Cave (VV167) near Langtry	From layer "A" approximately one foot below the surface of the cave
Gourd Rattle	May, 1960	Coontail-Spin Cave (VV83) in the north wall of the Rio Grande Canyon below the mouth of Seminole Canyon.	Zone "B" approximately 30 inches below the surface without removal of the overburden.
Four Musical Bows	June, July and August, 1933	From one of nine Shumla Caves ?*	No data available
Two Bull Roarers (Churingas)	1936	Horseshoe Cave (VV171) Cow Creek near Comstock	No data available

*It is quite likely that these instruments were found at different sites. Martin, in his report, contained in Big Bend Basket Maker Papers No. 3, makes mention of only three bows being recovered from the Shumla Caves, however, four bows are in the Shumla collection at Witte Memorial Museum.

The Panpipes

As previously mentioned the tied tubes found in association with the child burial are the only specimens known from the study area although it is possible that amateurs may have found similar instruments without reporting their findings.

These two pairs of tied pipes have been identified by the archeologist Donald Lehmer[166] as problematical pan pipes; however, it is believed by this investigator that there is no question of the identity. There was some hesitation in verifying this identification due to the lack of tubes in the nomenclature of both assemblages. At first, in the initial phase of study of these two instruments, it was thought that the two might be double pipes (double flutes), but the binding of both specimens seems to be of a tight and rigid nature which is typical of the panpipes and is rather uncommon with double flutes.[167] The binding

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[166]Lehmer, op. cit., p. 132.

[167]The double flutes are always connected together but not in a rigid bind as are the Panpipes. The loose binding permits freedom of movement for the double flutes which occasionally are played by two performers. An excellent photograph of a player of the double flute may be seen in the National Geographic, 122: 242 (August, 1962).

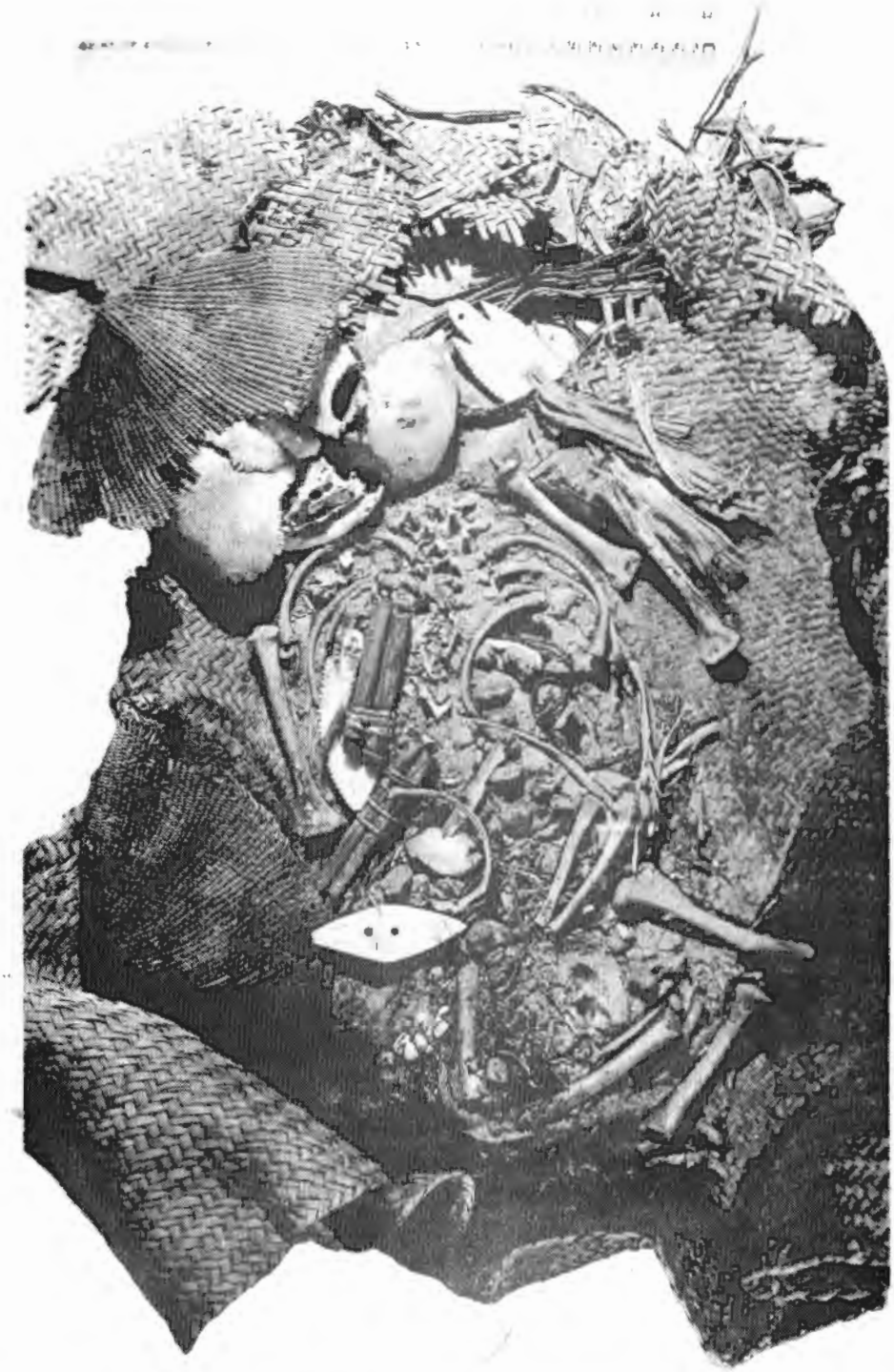

Figure XVIII. Burial from Horsehoe Cave (VV171) Containing Churingas and Panpipes.

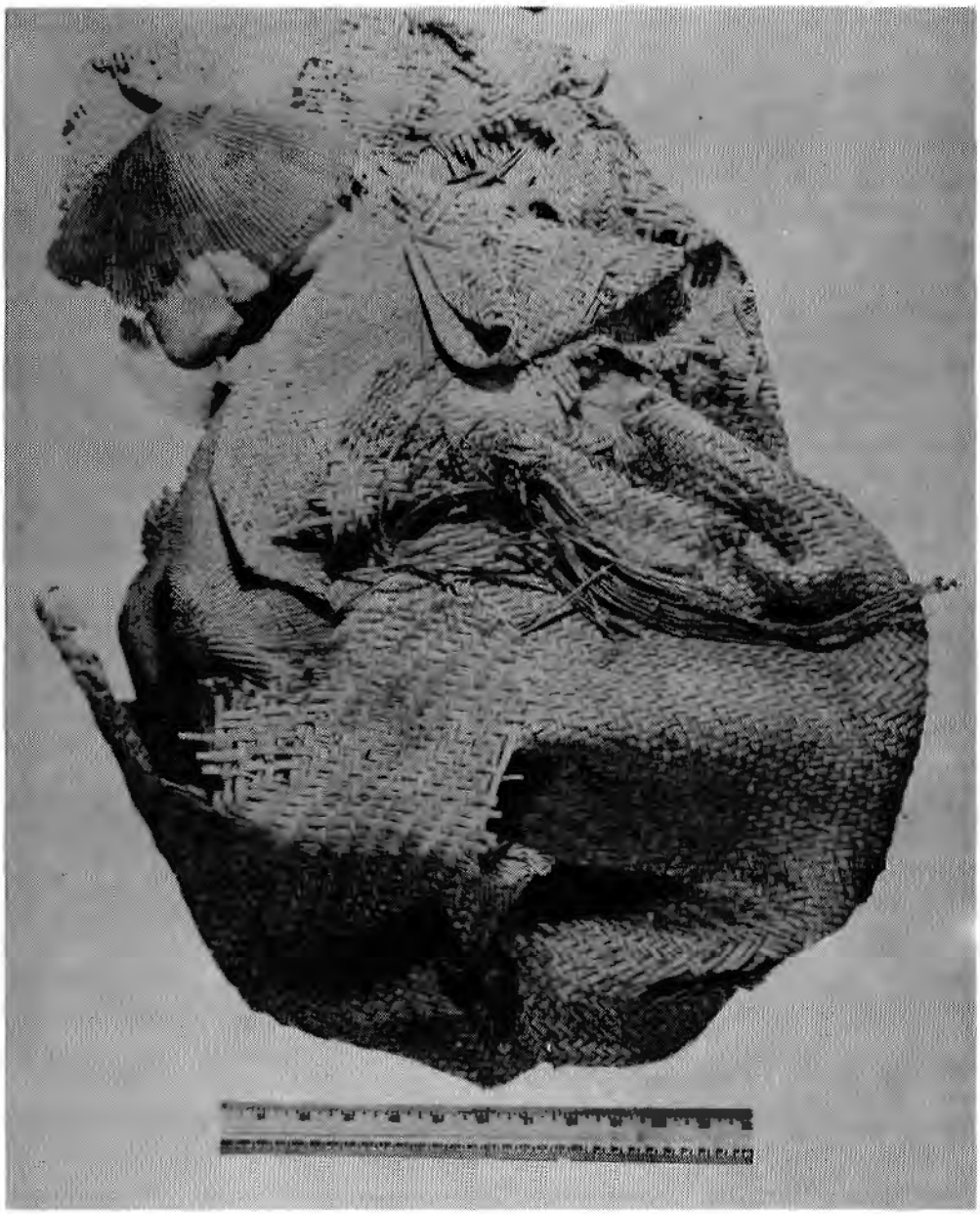

Figure XIX. Burial from Horseshoe Cave (VV171) Before It Was Opened.

material appears to have been made from deer hide and holds both tubes on one end rather than binding them together at the mid-section. This position of the binding along with the presence of a diagonal outline of binding or wrapping at the opposite end of the tubes provides rather conclusive evidence that these specimens are Panpipes. This diagonal outline is visible in the photograph of these two instruments (see Figure XX). It is believed, too, that these two specimens, by virtue of the presence of the diagonal outlines, may be part of a larger assembly or raft of pipes. The outline implies that both pairs of tubes are smaller components of larger instruments because of the small size of each tube. It is possible, admittedly, that they are the largest components of a raft, but the entire instrument would unquestionably be smaller than any known instrument if this were true.

Panpipes are distributed over a great portion of the ancient world and share a relative popularity today with rattles and drums among modern primitives residing particularly in the Latin American and Asiatic countries.[168]

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[168]These instruments are still in use by the Cuna Indians of Panama and by primitives in Mexico, Peru, Bolivia, Ecuador, Burma, and the islands of the Pacific. W. E. McCarson of Comstock recalls watching a Mexican sheepherder bind the tubes of cane and perform a simple melody on a an pipe during the early 1920's.

Figure XX. The Panpipes.

Many of these specimens recovered from prehistoric dwellings and burials in these countries have been elaborate instruments which may contain a raft of pipes (usually graduated in length) of as many as 33, such as the Rondador of Ecuador.[169] These multi-piped instruments are capable of producing many different pitches and some are capable of producing two whole tone scales such as the Pai Hsiao of China.[170] The general appearance of the large rafted specimens (not the bundled types)[171] resembles the pipes of the pipe organ. The name is derived from the Greek god Pan, and is in rather common usage throughout the world although in Peru it is called Antaras, and in ancient Greece was known as the Syrinx.[172]

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[169]An authentic Rondador from Ecuador having 29 tubes is in the possession of the writer.

[170]This instrument, or one much like it, was seen and heard in performance outside the International City in Shanghai, February, 1948.

[171]Sachs, The History of Musical Instruments, p. 177.

[172]Willi Appel, Harvard Dictionary of Music (Cambridge, Mass.: Harvard University Press, 1950), p. 551.

The Gourd Rattles

Although only fragments of a gourd rattle, along with the pebbles it contained, have been obtained in the area, there are undoubtedly more to be found in the caves and rockshelters. Gourd fragments are found often; however, it has been impossible to determine whether or not these were used as rattles. Mendoza[173] states that this is a very widely distributed instrument in the Americas and was manufactured in various ways. In much of Latin America as well as the United States this instrument is known by the name Maraca although Indian names in different countries will vary. According to Mendoza[174] the following names apply to the instrument in the various countries and locales:

1. In Mexico:
   - Sonaha . . . . . Spanish
   - Guaje . . . . . Vulgar name
   - Ayacachtli . . . (Nahoa) Aztec
   - Sonaha Tolteca . Toltec Indian
2. In Haiti: Tchatcha
3. In Yucatan: Luuch--Mayan (Name is derived from the tree by the same name).

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[173] Vicente T. Mendoza, Personal communication, September 8, 1962.

[174] Ibid.

4. In Guatemala: The Chortis Indians refer to this instrument as the Chinchin

5. In Panama: Guacharaca

6. In Venezuela: Guacharaca

7. In Colombia: Chuchos (Masculine) or Chuchas (Feminine)

8. In Ecuador: Marcao

9. In Peru: Chilchil

10. In Brazil: Maraca (the original source of the name Maraca)
In the area of Pernambuco it is called Xere.
In the area of Bahia it is called Adya.

11. In Cuba: Maraca is the common name although the African influence has created other names of African origin:
Bantus: Nthamba, Nsansa, Nsansi, and Luzenze
Congolese: Mussamba and Nkembi
Yorubas: Achere
Tonga: Ndjele

12. In the Guianas: Shak-shack or Saka-sake

Mendoza[175] explains that there are five basic types of gourd rattles to be found in the Western Hemisphere; however, not all of these types are prehistoric or are of prehistoric origin. The natural type is made from the "fruta de alguna cucurbitacea" or pumpkin. Also, from the "Guaje

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[175] Ibid.

Cirian" or gourd fruit, natural rattles are made by drilling a hole in order to place the pebbles inside the gourd. The gourd furnishes its own handle, hence the name natural. It is believed that gourd rattles from the study area are of this type.

There are other types in which the gourd is attached to a handle by being glued or tied. Some specimens have the handle transversed through the gourd and then clamped or glued into position. These types are referred to as artificial and are not likely to be found in the study area. The artificial types represent a much too advanced manufacturing for the primitives of the study area to have achieved. The "extra sounded" gourd rattles, as Mendoza[176] refers to them, which have a net of beads incased about the exterior of the fruit, also represent a somewhat advanced type of manufacturing for the primitives of the study area. However, it is believed that this instrument was utilized by the people of the early Pecos River Focus. Pictographic evidence at VV180, as shown in Table VI, Chapter III, has in the main panel a depiction of an anthropomorphic figure

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[176] Ibid.

holding an object which resembles a rattle of the "basket" type.[177] (See frontispiece.)

The Musical Bows

The only specimens of musical bows known to have been found in the study area are in the collection of the Witte Memorial Museum in San Antonio. These specimens, four in number, are, in the opinion of the writer, musical instruments. As Martin[178] states in his report of the Shumla Caves, these bows have the appearance of toy bows but probably served other purposes.

One specimen which utilizes Y-shaped projections on the twig rather than splits in the ends to hold the cord is most certainly a musical instrument. It was not possible to examine this particular specimen other than in the glass case at the Museum, which did not permit a close inspection of the ends of this bow. Teeth marks may be in evidence on this specimen as well as on the other three instruments.

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[177]Sachs, The History of Musical Instruments, p. 27.

[178]George C. Martin, "Archeological Exploration of the Shumla Caves," Big Bend Basket Maker Papers No. 3, Witte Memorial Museum, San Antonio, 1933, p. 68.

The lack of scientific data concerning the recovery of these instruments is indeed a great loss for otherwise this information would aid in making specific determinations for the whole of the Pecos River Focus. Martin[179] reports the finding of similar specimens from Brewster County:

> Small bows, about a foot in length, made from a branch or twig, and bent with a string of fiber, were the only bows recovered. These were probably toys, for although they are strong enough to rotate a fire drill, it is doubtful if they were used as such, for no parts of the fire drills found show evidence of having been used in that manner.[180]

It would be important to know if similar bows have been found in the excavations of the caves of the desert cultures of New Mexico, Arizona, and Utah,[181] as well as in Northwestern Mexico. At the present time it is not known if these instruments have been recovered in the Cuatro Cienegas Basin in Coahuila as no artifactual lists have been published.

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[179] Ibid.

[180] Ibid.

[181] It seems quite likely that this trait is well founded in the Trans-Pecos early archaic; and, because of the similarity of cultures with the early Pecos River Focus and desert cultures in the Southwestern United States, there is reason to believe that musical bows are well distributed in this culture.

Another specimen listed in Table VII as specimen No. 3 is an interesting bow in that two pieces of twigs have been joined together by a binding of loose twisted fiber cord with an added finer cord hanging loose at one end of the binding. This may have been a more advanced type of musical bow which employed a resonator device and is classified by Sachs[182] as a Braced Bow.

> In the braced bow the string is divided into two sections by a loop of thread tied round the bow and the string. The two sections produce two different fundamentals with their relative partials. Also, the player can touch the string, as do fiddlers, in order to shorten the vibrating length and raise the pitch.[183]

The resonating device which apparently is placed at the mid-section of the bow[184] is oftentimes a gourd which Sachs[185] further classifies as a Gourd Bow.

The other three bows of the area are classified as Mouth Bows, because the mouth acts as the resonator. A drawing from Life Magazine's publication, The Epic of

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[182]Sachs, The History of Musical Instruments, p. 57.

[183]Ibid.

[184]Ibid., p. 49.

[185]Ibid.

Man,[186] shows a Shaman in a paleolithic ceremony plucking a one-string instrument while holding one end of the bow in his mouth, which is the method employed in playing this instrument. The musical bows, according to Sachs,[187] are some of the first instruments used for intimacy and to induce meditation:

> . . . the Akamba in eastern Africa, as well as the Maidu in middle California, consider it the most effective instrument for getting in contact with spirits.[188]

The Strung Rattles

The strung rattles from the Pecos River Focus, particularly those which are made of mussel shells, are undoubtedly the oldest musical instruments that have been recovered. The existing stratigraphic data bear this out with the one exception of five rattles from Eagle Cave (VV167) that were recovered in the upper zone (see Table VIII). These artifacts which bear a single drilled hole

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[186]Courtland Canby (ed.), The Epic of Man (New York: Life Magazine, 1961), pp. 37-38.

[187]Sachs, The History of Musical Instruments, p. 56.

[188]Ibid., pp. 56-57.

and lack other refinements, such as painting or incising with purposeful design patterns that might tend to classify the artifact as a gorget or pendant, are rattles.

One might expect to find almost every variety and type of strung rattle in the area if Sachs'[189] observations are taken into consideration. Seeds, teeth, nuts, hooves, and other amazing concoctions are frequently utilized by primitives to provide the performer with a means of producing sound which contains magic connotations. These rattles are suspended about the ankles, knees, waist, or neck of a dancer and respond to the body movements. This type of instrument, according to Sachs,[190] is among the earliest of instruments known by man which is proved by excavations of paleolithic strata. It is also a manifestation of a very low cultural standard among modern primitives.

Of particular interest are the five deer scapula rattles, of which three are strung, and the fourth specimen contains a cord which may have originally connected it to the other three. The fifth scapula also has a coil of cord about it, but it is of untwisted fiber which leaves some

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[189] Ibid., p. 26.

[190] Ibid.

doubt as to whether or not it belonged to the entire assemblage. It cannot be determined that these artifacts were recovered from the same site, but the likelihood that this is the case is quite obvious when one considers the remote possibility of finding such unusual artifacts scattered about in nine caves.[191] Unquestionably the three strung specimens were found together, but the fourth specimen and the fifth specimen may have come from different sites.

The Reed Flutes

Only two reed flutes have been recovered from the study area: one from the excavation of the Fate Bell Shelter (VV74) and one from VV39 in Satan Canyon. Both of the specimens are of identical manufacture. The septum joint has been completely cut away at one end; however, the opposite end appeared to have the septum intentionally punctured. A small hole is in the barrel of the specimen from the Fate Bell Shelter (VV74) but it is impossible to determine if this is some type of growth disconformity of the cane or was intentionally made. A slight sound could be

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[191] These artifacts are reported to have been recovered in the archeological investigations of nine Shumla Caves.

TABLE IX

Problematical Instruments of
The Pecos River Focus

Instrument	Description	Provenience	Remarks
Two Reed Flutes	River Cane (Arundo donax) or possibly Arundinario gigantea (walt) chapm	Fate Bell Shelter (VV74) Seminole Canyon	
Rubbing Tortoise Shell	Small Tortoise shell, broken on proximal end	Horseshoe Cave (VV171) Cow Creek	Taken from a medicine bundle or Shaman's bag.
Bone Whistle or flute	Leg bone of a large bird	Javelina Cave (VV109) near the Rio Grande west of the Pecos River	
Incised Stick	A portion of Sotol stalk (Dasylirion texanum scheele) approximately six inches in length and three quarters of an inch in diameter	Javelina Cave (VV109) near the Rio Grande west of the Pecos River	The grooves of this specimen are not deep enough to qualify it as an instrument
Stone Pendant (Bull Roarer)	An oblong slate artifact shaped as a Bull Roarer and drilled accordingly	Jacal Canyon	Found in association with a burial
Stone Trumpet	A fragment of Red sandstone shaped into a cone	Eagle Cave	

Table IX - continued

Instrument	Description	Provenience	Remarks
Five Specimens in a single cache	Cane* (Arundo donax)	Fate Bell Shelter (VV74) Seminole Canyon	Recovered within the upper 18 inches of debris
Ribbon Reed	Cane* (Arundo donax)	Gillis Ranch Cave	Recovered from the upper debris
Ribbon Reed	Cane* (Arundo donax)	Flint Cave (VV75) in Seminole Canyon	Recovered near the mouth of the cave below the upper vegetal layer
Ribbon Reed	Cane* (Arundo donax)	Unnamed Cave in Coahuila Mexico. Overlooks the Rio Grande near the concentration of Shumla Caves	Recovered from the upper debris
Bull Roarer (Churinga)	Mussel Shell with serrated edges bearing three drilled holes	Horseshoe Cave (VV171) on Cow Creek	Found in association with a burial

*The description of these artifacts requires more space than is provided by this table. A complete description follows in the text.

produced from both of the specimens but the small hole in the one instrument had no appreciable effect on the pitch or quality of sound.

According to Parker Nunley[192] a similar reed flute has been recovered in recent investigations at Coontail-Spin Cave (VV82). This specimen was found in a deeper zone than might be expected for such a perishable material. A published report of the excavational activities at this site will be in a forthcoming publication of the Texas Archeological Salvage Program under a specified contract arrangement between the National Parks Service and The University of Texas.

The Ribbon Reeds

These instruments of cane (Arundo donax) are difficult to identify without devoting considerable time to the inspection of the minute incisions made horizontally along the tube of cane. At first, the untrained observer might

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[192]Parker Nunley is the field archeologist presently in charge of field activities within the Amistad Basin Reservoir area. The field crew of this expedition of The University of Texas is composed of both graduate and undergraduate students from the University, and are under the direct supervision of E. B. Jelks of Austin.

mistake the instrument for a malformed piece of cane which had become ruptured through use. The incisions made on the cane tubes are obviously performed with cutting instruments which are exceptionally sharp, such as small burins or gravers. This can be determined only with the aid of a microscope or a magnifying glass. The ends of the cane may or may not be cut. Some of the specimens observed by the writer have ends that were undoubtedly broken off with no apparent attempt to cut the cane except along the barrel of the tubes. It seems that the primitives, obtaining a fresh piece of cane, would break down the internal fibers after making the necessary incisions by moving both ends back and forth, possibly by rolling the cane in the palm of the hand. The multi-split side orifices could be controlled by simply expanding or contracting the cane. When sufficiently moistened by the saliva from the mouth the thin fibers will vibrate as the air column passes against them.

The ribbon reeds recovered by this writer may or may not be musical instruments, although at the present time it seems that those which are reported as problematical are very definitely artifacts and conceivably are musical instruments. Several days of research were devoted to the making of similar instruments and experimenting

with the variable sound productions capable of such instruments. The sound effect produced is quite shrill and carries for a great distance. Unfortunately the specimens which are reported in this thesis were not available for testing.

It is believed by this writer that a great many of the caves and rockshelters of the area contain these problematical instruments within the debris of their upper levels. The cane specimens are the most elaborate; however, it is also believed that other materials undoubtedly were used in the manufacturing of this particular type of instrument. Lechuguilla (Agave lechuguilla torr), Sotol (Dasylirion texanum scheele) or the many varieties of Yucca plant may have furnished the material for instruments of this type, as well as some of the grasses of the region.

The Bull Roarers

The bull roarer, like the gourd rattle, has several other names. The name Churinga is sometimes used although the origin of this name is not known by the writer.

In German the term is Schwirrholz; in French, Planchette or Ronflante; and American archeologists jokingly refer to the instrument as a "whizzer," "buzzer," "whistler,"

or "twister." It has not been possible to obtain the name of this instrument from Southern Mexico where perhaps the instrument is not known from the excavations of archaic and paleolithic tombs.

Some of the archeologists who have worked in the area and are acquainted with the archeological resources in general are reluctant to agree with the problematical status of the slate specimen recovered from Jacal Canyon.[193] The major contention seems to be that Bull Roarers are supposed to be made of wood as indeed the majority of them are, within the low modern primitive cultural strata, if an available source of suitable wood exists. The limestone slate specimen has the general shape and thinness of the wooden bull roarers found among the aborigines of Australia and primitives of the Polynesian and Melanesian Islands of the Pacific; however, the geometric design pattern commonly associated with these instruments is not present. Numerous longitudinal incisions have been purposefully carved into one face of the problematical instrument although no painting or signs of painting can be seen. The object appears completely foreign to the study area as this type of

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[193]Personal conversation with Dr. T. N. Campbell, E. B. Jelks, and Parker Nunley.

limestone slate does not belong to the geological formations of this area.[194] It is possible that the object may be a trade item that was acquired from some other group of primitives.

Sachs[195] mentions that these instruments may be manufactured of bone as well as wood; however, the utilization of stone or shell is not mentioned in the general literature. We have seen, nevertheless, the ingenious use of other materials in the making of countless thousands of implements in the primitive world, and it seems that the argument that bull roarers must be made of wood is inane. The use of bone, stone, shell, wood, and any other available material is not only feasible but appears to be the general modus vivendi in the primitive world.[196]

The two shell churingas found in association with the child burial at Horseshoe Cave (VV171) are unquestionably churingas because these specimens conform positively

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[194]This object may not be limestone. It was examined at Witte Memorial Museum where it is on exhibition. The color and general appearance did not imply an affinity to the study area or any of the neighboring geological structures.

[195]Sachs, The History of Musical Instruments, p. 64.

[196]Sachs, Our Musical Heritage, p. 3.

to the classic shape set forth by Sachs.[197] Both of these shell artifacts were previously identified by Butler[198] as projectile-shaped pendants which in some respects the objects seem to represent. The base or stem of both resemble the Shumla type dart point, but the crenelation and obvious attempt to outline the dorsal projection of the fish leaves little doubt as to the identification. The problematical specimen found in the same burial is also made of shell but does not imply the fish shape which is obvious on the other two specimens. The specimen is eliptical in shape and is serrated like the identified specimens. It is very likely a churinga, but until more study is given this specimen, a positive identification cannot be made. The diamond-shaped shell object which bears two drilled holes near the center is probably a pendant or ornament. (See Figure XXI.)

Campbell[199] assumed that, because bull roarers had not been positively identified from the study area prior to the recent identification of the specimens from Horseshoe Cave (VV171), the feasibility that the pictographs contained

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[197]Sachs, The History of Musical Instruments, p. 42.

[198]Butler, op. cit., p. 7.

[199]Personal interview with Dr. Campbell, July, 1962.

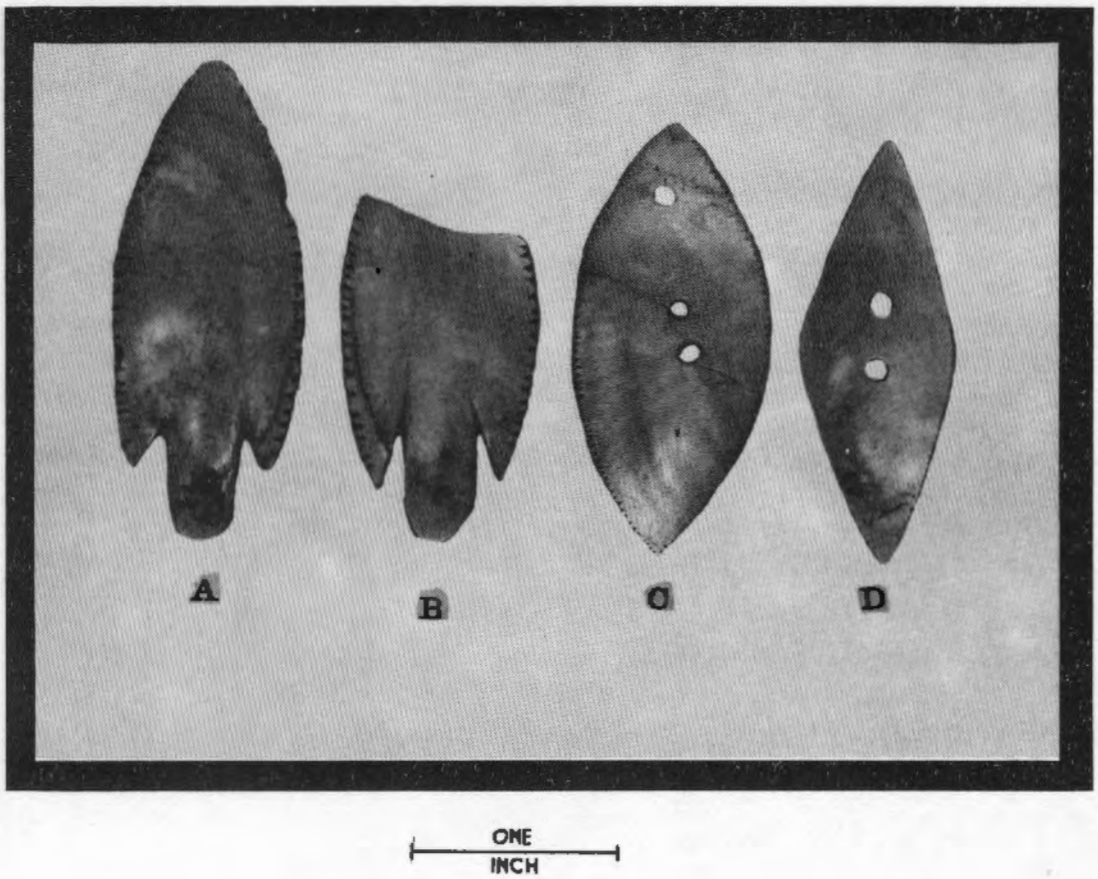

Figure XXI. Bull Roarers (Churingas) from the Child Burial at Horseshoe Cave.

evidence of the use of bull roarers was interesting but was not supported by archeological recovery of such instruments. It now appears rather substantially proven that the pictographs may include these instruments in some of the panels at various sites. As the writer of this thesis pointed out in Chapter III, the existence of the painted pebble design argues in favor of the presence of these instruments in the dry caves of the area, but the identification of recovered instruments from Horseshoe Cave (VV171) provides irrefutable evidence of the existence of these instruments.

It does, however, appear somewhat incongruous that the specimens thus far identified, including the problematical specimens, do not have the painted geometric designs which would be expected to be present on such instruments. Perhaps this departure from the painted design is again an indication of some cultural affinity or affiliation not as yet recognized. A more intensified attack on the upper portions of the dry caves will, in the opinion of the writer, produce more of these instruments and eventually specimens that contain design elements as well.

The bull roarer is played by tying the flat object to a cord and spinning it about the head. The larger the

object, the deeper is the tone and roaring effect. The flat object revolves on another axis where it is tied. Thus, the faster it is spun by the player, the greater the intensity of sound. Pictured in the drawing of a paleolithic cave scene from The Epic of Man,[200] a player spins the instrument attached to a cord which is obviously an important part of a ceremony. Sachs[201] pictures the instrument in his book as being tied again to a stick of several feet in length which would increase the leverage of the arm, thus enabling the player to obtain even greater speed in spinning the instrument.

Rubbing Tortoise Shell

This problematical instrument is considered problematical only by virtue of the unique circumstances of its provenience when recovered. The shell had been placed in a medicine bag or shaman's bag along with other items of interest such as eleven left mandibles of rodents which contained all their teeth. Because of the secretive

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[200]Canby, op. cit., p. 34.

[201]Sachs, The History of Musical Instruments, p. 41.

associations made to the friction instrument, it is believed to have been an instrument used by shamans and other important persons. As previously stated, the instrument did not show any evidence of having been rubbed, although this fact could not be adduced because of the fragmented and broken nature of the projecting end of the shell.

Stone Trumpet

This instrument was studied only through the photographs and literature. It cannot be determined, as a consequence, whether or not the object is a stone trumpet or some other object as is suggested by Davenport.[202] However, the appearance and description of the object implies that the conical-shaped artifact may have conceivably been used as a trumpet. Before a definite identification can be made, however, a more thorough study of this artifact must be made.

Problematical Reed Flutes

Two specimens of cane that show considerable handling and which have one septum punctured may be flutes. The

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[202]Davenport, op. cit., p. 11.

cane has been shaved at one end of the barrel in an attempt to produce thinning of the wall at this point. Neither of the specimens possess a drilled finger hole.

Both problematical instruments were recovered from Fate Bell Shelter (VV74) in 1932. The drawer containing the artifacts and materials at The University of Texas is not sectionized or organized in such a way as to make inspection of the various artifacts an easy task. It can only be assumed that the two specimens in question correlate to the literature[203] on the subject of cane tubes. It seems likely that these two tubes could have been intended for rafting into a pan pipe although both show no wrapping or binding outlines and are hand-smoothed.

Miscellaneous Musicological Materials

Of considerable interest to the writer are two items recovered by W. E. McCarson[204] of Comstock in the late 1930's. One is a stone artifact of the same conical

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[203]Pearce and Jackson, op. cit., p. 128.

[204]Photographs of these two objects were given to the writer by Mr. McCarson for use in this thesis. The photographs were made by the late Forrest Kirkland of Dallas.

shape of the problematical stone trumpet previously mentioned. However, this specimen is rather elaborately carved in a basket or geometric design. The use of such an artifact has been the source of much controversy among professional as well as amateur archeologists. This object conforms to the general appearance of the Cascabeles de Cobre (Copper Bells) and the Cascabeles de Oro (Gold Bells) found in southern Mexico and pictured in the Saldivar[205] book, Historia de la Música en Mexico. (See Figure XXII.)

The other object is equally intriguing as it is found rather well distributed through European paleolithic cave sites and is identified oftentimes as the Bâton de Commandement, or ceremonial staff or wand.[206] The artifact is also identified in Canby's[207] monumental book, The Epic of Man, as being a bâton de commandement, and a drawing of the problematical use of this artifact by a shaman in a cave ceremony is illustrated. Other archeologists have believed that this artifact is a type of shaft straightener or wrench

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[205]Saldivar, op. cit., p. 22.

[206]Henry Fairfield Osborn, Men of the Old Stone Age (3d ed.; New York: Charles Scribner's Sons, 1925), p. 311.

[207]Canby, op. cit., p. 35.

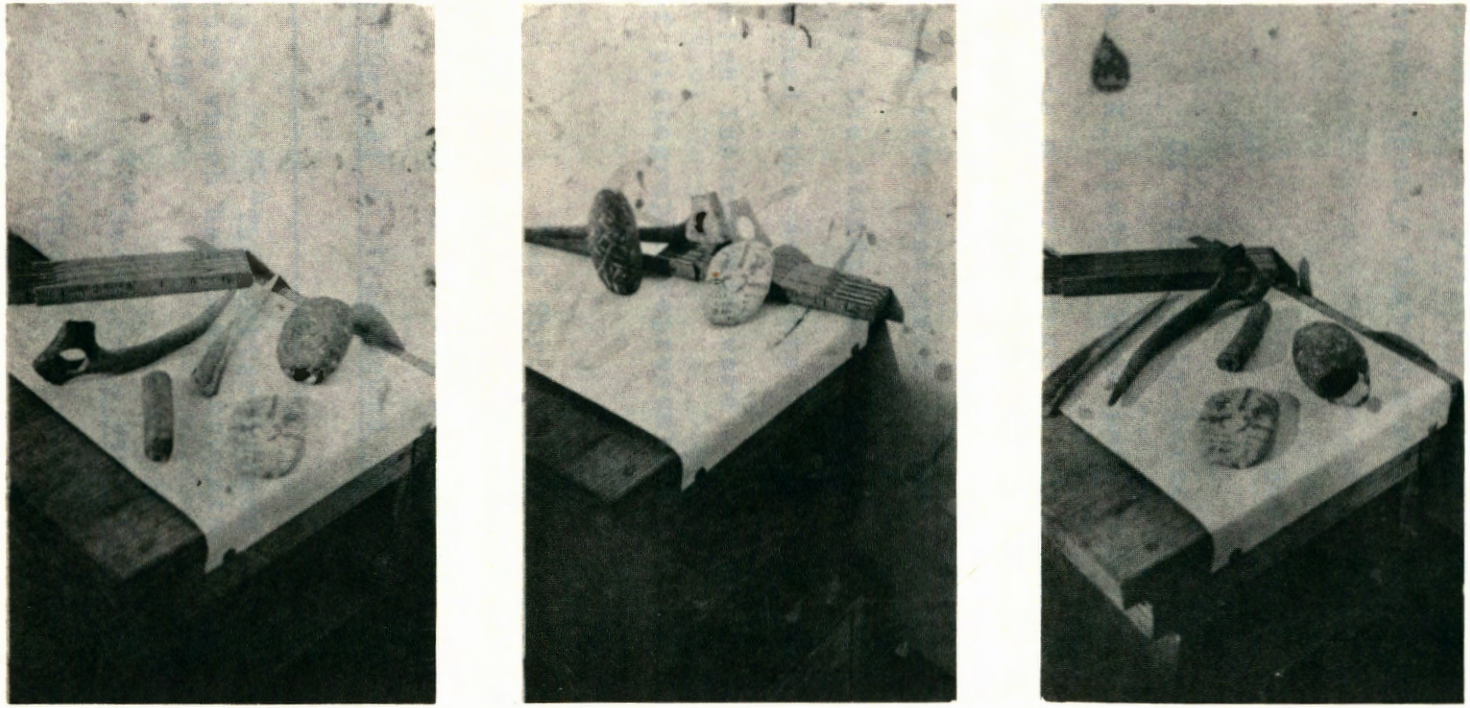

Figure XXII. Two Miscellaneous Artifacts.

In each photograph the Bâton de Commandement and a problematical cascabelos (stone bell) may be seen from different perspectives. Other items of interest are a bone awl, painted pebble, and an unidentified object that appears to be made of bone.

although the present literature[208] seems to advocate the former theory that the object is a bâton de commandement.

Summary

Of the thirty-three musical instrument entries in Table X, sixteen have been recovered from pictograph sites. This is a percentage of 48.48 of the instruments found within pictograph sites and does not include the one petroglyph site mentioned. This is quite significant when viewed from the standpoint that ten of the entries had no data mentioned that accounts for a percentage of 30.33. Sites in which instruments were recovered that contained no evidence of pictographs represent the remaining 21.19 per cent.

The Chronology of the Instruments

Erich M. von Hornbostel[209] in his book, The Ethnology of African Sound Instruments (1933), and Sachs[210]

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[208]The writer refers here to the general literature which has been encountered in pursuance to this study.

[209]Sachs, The History of Musical Instruments, p. 62.

[210]Ibid.

TABLE X

Instrument Recovery Correlated with Pictograph Sites
(Both known and problematical instruments included)

Instrument	Picto-graphs	Pictographs depicting musical endeavor	Provenience
One cylindrical flute	Yes	"Dancing warriors" and a single dancing figure wearing a flared skirt which conceivably may be composed of strung rattles	Fate Bell (VV74) and adjoining site component VV73
One cylindrical flute	Yes	"Dancing warriors" and a single dancing figure wearing a flared skirt which conceivably may be composed of strung rattles	Fate Bell (VV74) and adjoining site component VV73
Two Panpipes	No	No	Horseshoe Cave (VV171) on Cow Creek
One Reed flute	Yes	"Dancing warriors" and a single dancing figure wearing a flared skirt which conceivably may be composed of strung rattles	Fate Bell (VV74) and adjoining site component VV73
One Reed flute	Yes	Scenes are problematical although ceremony is indicated.	VV39 in Satan Canyon
Two Bull Roarers	No	No	Horseshoe Cave (VV171) on Cow Creek
Rasping Sticks or Musical Scrapers			
One Specimen	Yes	"Dancing warriors" and a single dancing figure wearing a flared skirt which conceivably may be composed of strung rattles	Fate Bell (VV74) and adjoining site component VV73

Table X - continued

Instrument	Pictographs	Pictographs depicting musical endeavor	Provenience
One Specimen	No	No	School Cave (VV68)
One Specimen	No data	No data	Muertos Cave (TMM1209)
One Specimen	No data	No data	Pelote Cave (TMM1735)
One Specimen	No data	No data	From one of nine Shumla Caves
One Specimen	No data	No data	From one of nine Shumla Caves
One Specimen	No data	No data	From one of nine Shumla Caves
One Specimen	No data	No data	From one of nine Shumla Caves
One Specimen	No data	No data	Pecos River Focus
Rattles			
Five Strung rattles	Yes	"Dancing warriors" and a single dancing figure wearing a flared skirt which conceivably may be composed of strung rattles	Fate Bell (VV74) and adjoining site component VV73
One rattle	Yes	"Dancing warriors" and a single dancing figure wearing a flared skirt which conceivably may be composed of strung rattles	Fate Bell (VV74) and adjoining site component VV73
Five Deer Scapulae rattles	No data	No data	From one (?) of nine Shumla Caves

Table X - continued

Instrument	Pictographs	Pictographs depicting musical endeavor	Provenience
Five Strung rattles	Yes	Problematical bull roarer depicted in the right hand of one figure	Eagle Cave (VV167)
Gourd rattle	Yes	Remaining pictographs are very dim and probably were never very extensive*	Coontail Spin Cave (VV82)
Four musical bows	No data	No data	From one (?) of nine Shumla Caves
Problematical Instruments			
Two Reed flutes	Yes	"Dancing warriors" and single dancing figure wearing a flared skirt which may be composed of strung rattles	Fate Bell (VV74) and adjoining site component VV73
Rubbing Tortoise shell	No	No	Horseshoe Cave (VV171)
Bone Flute	No	An outstanding petrogliph is carved on the rear wall of this cave. (Zigzag design)	Javelina Cave (VV109)
Incised stick or musical scraper	No	An outstanding petrogliph is carved on the rear wall of this cave. (Zigzag design)	Javelina Cave (VV109)

*It has been possible to determine that excessive roof and wall spalling probably accounts for the absence of pictographs at this site although dim traces of paint remain. The site is in close proximity to the outstanding Panther Cave (VV83) pictograph site.

Table X - continued

Instrument	Picto-graphs	Pictographs depicting musical endeavor	Provenience
Stone Pendant (Bull Roarer)	No data	No data	Jacal Canyon
Stone Trumpet	Yes	Problematical bull roarer depicted in the right hand of one figure.	Eagle Cave (VV167)
Ribbon Reeds			
Five specimens in a single cache	Yes	"Dancing warriors" and single dancing figure wearing a flared skirt which conceivably may be composed of strung rattles	Fate Bell (VV74) and adjoining site component (VV73)
Ribbon reed	Yes	No	Gillis Ranch Cave near the Devils River
Ribbon reed	Yes	Problematical	Flint Cave
Ribbon reed	Yes	Problematical	Unnamed Cave in Coahuila, Mexico
Ribbon reed	Yes	Paintings are dim	Unnamed Cave in Lewis Canyon on the Bill Lausen Ranch
Bull Roarer	No	No	Horseshoe Cave (VV171) on Cow Creek

have both developed and followed a "geographical" method to determine the chronology for primitive and oriental instruments. The main axioms of this method, which are to some extent in agreement with archeological data from the study area, are:

1. An object or idea found in scattered regions of a district is older than an object found everywhere in the same area.
2. Objects preserved only in remote valleys and islands are older than those used in open plains.
3. The more widely an object is spread over the world, the more primitive it is.

This distribution and chronology are further elaborated by the following physical phenomenon:

> When a stone is thrown into a pond it will cause a series of circular waves, which grow larger and larger until they fade away or are stopped by the edge. In this series of concentric circles the first (that is the oldest) is the largest one, while the more recently originated circles have a smaller diameter.[211]

Sachs[212] states that it is his belief that each of the oldest ideas and inventions of instruments come from

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[211] Ibid.

[212] Ibid., p. 203.

one center, and the nearest affinity (except for a few universally distributed instruments) for all America is the Pacific area. This is not in agreement with scientific evidence in view of the presently popular theory that North America was peopled from across the Bering Strait.[213]

It seems inconceivable to many scientists that people may have reached the New World by any other route than by way of the Bering Strait. However, it seems possible that there was some contact in recent times.[214]

> Trans-Pacific voyages have been most widely advocated on the basis of certain cultural traits that are common to both Oceania and South America.[215]

These cultural traits which are in common with those of Oceania and South America include musical instruments. Some of the instruments from the study area unquestionably show similarity to other instruments in the Americas which are classified as having an affinity with specifically a territory comprising China, the area between China and India, the Malay Archipelago, and the Pacific Islands.[216]

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[213]Wormington, op. cit., p. 249.

[214]Ibid.

[215]Ibid.

[216]Sachs, The History of Musical Instruments, pp. 202-203.

These instruments, based on archeological evidence from the study area, are for the most part from the upper strata and are recent from a stratigraphical standpoint.

Stratigraphically the oldest instruments recovered in the Pecos River Focus are the strung rattles.[217] These instruments, as shown by Table VIII of this thesis, definitely testify to this fact, although it must be mentioned again that there has not been an adequate sampling of the dry caves within the area. Until more instruments are removed from the area under controlled excavational procedures, definite conclusions regarding the antiquity of the instruments cannot be made. It is safe to assume, however, that future studies assisted by radio carbon technology will result in much the same findings although some exceptions may be found in the evidence.

Using the chronology of Sachs[218] and Hornbostel[219] it is obvious that the musical scrapers are also of great antiquity as they are well distributed throughout the study

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[217]The stratigraphic provenience of the rattles is given in Table VIII.

[218]Sachs, The History of Musical Instruments, p. 62.

[219]Ibid., p. 63.

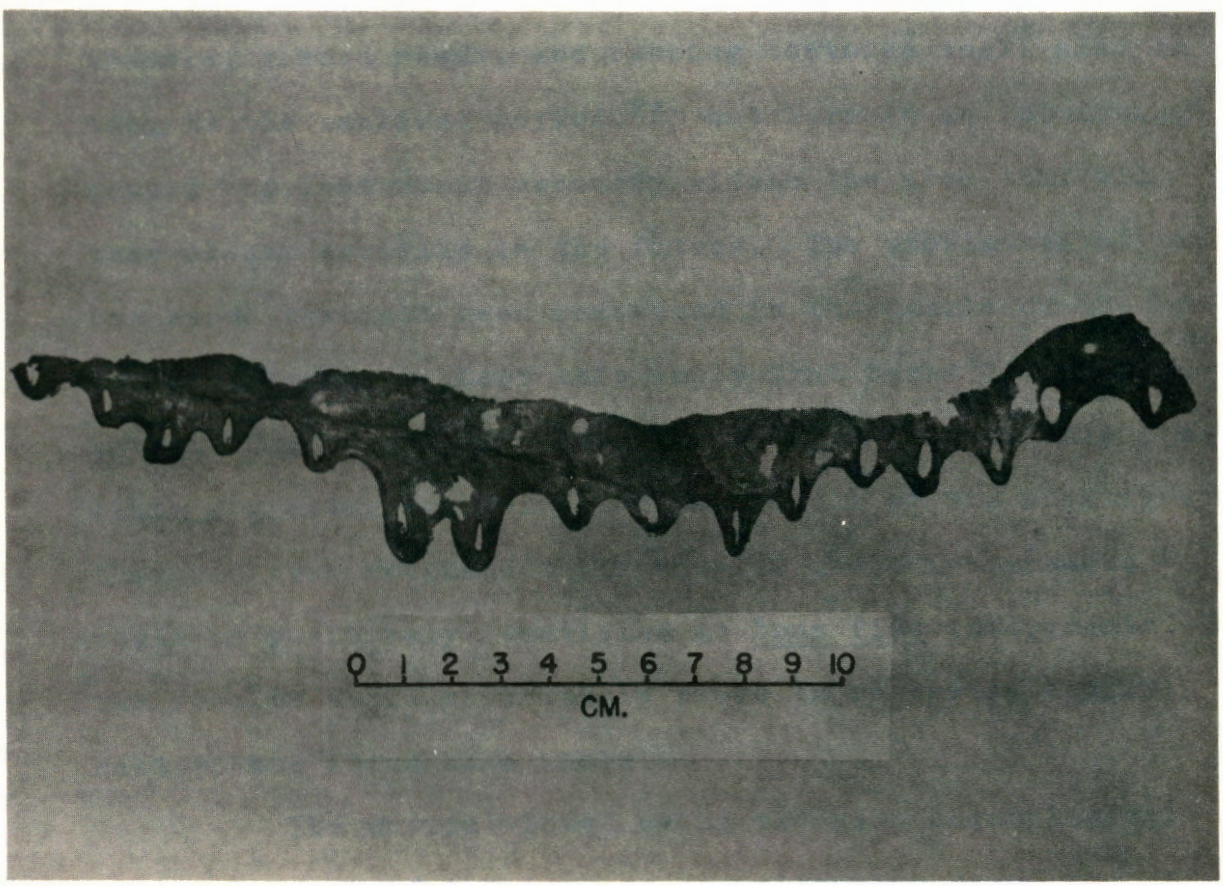

Figure XXIII. Problematical Specimen.

A fragment of deer hide from Fate Bell Shelter (VV74) that may have served as a belt for strung rattles attached about the wrists, ankles, knee, or neck.

area as well as having a universal distribution over much of the ancient world. The flutes, both of wood and bone which do not contain finger holes, are of the earliest paleolithic manufacture according to Sachs.[220] The bull roarers, ribbon reeds, and rubbing tortoise shell also belong to the earliest period,[221] but here is an intriguing aspect of instrument recovery within the area that will bear closer scrutiny in the future. The problematical ribbon reeds have all been recovered in the debris of the upper stratigraphy. Does this imply that Sachs[222] and Hornbostel[223] are wrong in their chronology, or does this proclaim a greater age for the upper levels of the stratigraphy than had been estimated? If some of these instruments could be positively identified as bona fide instruments, the results would very likely prove to be vastly significant to the Focus as a whole.

The musical bows, using the same chronological scheme because of the lack of stratigraphic data, are of a

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[220] Ibid.

[221] Ibid.

[222] Ibid., p. 62.

[223] Ibid.

later period.[224] There is every reason to suspect that these instruments were recovered from the upper zones because of the perishable nature of these artifacts which still have the original cordage intact. Also, the flutes which have finger holes are of a later period.[225] Yet, another interesting but confusing statement of Sachs' is that flutes which possess finger holes are very rarely found in North America.[226] This writer finds this statement not only incorrect but doubts very seriously that the statement was based on a knowledge of prehistoric instrument recovery within the United States and more especially in the early desert cultures of the southwest and northern Mexico.[227] Bone flutes bearing single finger holes have been

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[224] Ibid., p. 63.

[225] Ibid., p. 193.

[226] Ibid., p. 194.

[227] The Mexican Government has only recently turned its attention to the archeological resources of northern Mexico, having preferred the more attractive pyramid sites in the lower valley of that country. Virtually the same situation has existed in the United States with most activities being carried on among the later pottery producing cultures. As a consequence it is entirely possible that Dr. Sachs before his death was not aware of these later developments.

recovered from almost every corner of Texas.[228] It cannot be denied that specimens of both cane and bone which do not bear drilled finger holes are unquestionably in the majority, but this does not effect the fact that both types of specimens are represented and that the specimens bearing finger holes are rather well represented in this study of the materials of the Pecos River Focus.

The bone flute examined in pursuance of this paper possesses a drilled finger hole and not a mouth hole which would classify the artifact as a cross flute or transverse flute. The supporting evidence for this conclusion was clearly stated earlier in this chapter. The incline plane (beveling) which the specimen in question possesses is such that it cannot be classified as a mouth hole. A mouth hole would be expected to be drilled in such a way that the edges of the orifice would be quite sharp, thus permitting the wind column to be adequately cut. The specimens from East Texas (See Figure XXIV) are almost identical to the flute from the study area but they appear to be transverse instruments due to the complete removal of

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[228]Personal conversation with E. B. Jelks, October, 1962.

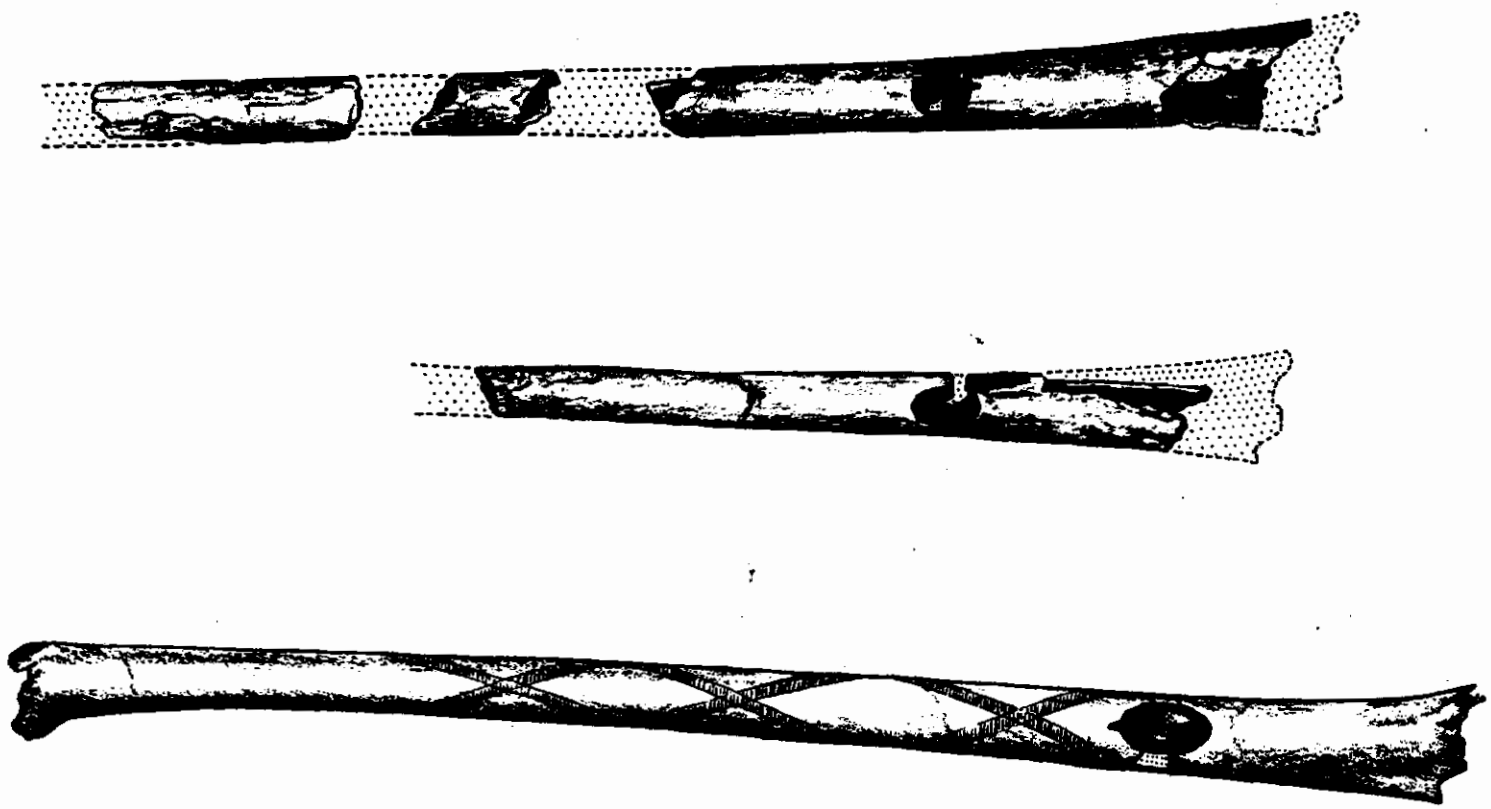

Figure XXIV. Flutes from East Texas.

These flutes, made from the leg bones of large birds, are from burials at the Walter Bell Site in San Augustine County, Texas. The culture is agricultural, ceramic Neo-American, probably dating 1015 A.D. Note direct drilling of mouth hold which classifies these instruments as transverse flutes.

material about the mouth hole. No beveling remains about the orifices of either of these instruments and a sharp edge is present.

The pan pipes of the area, like the flutes, belong to an ancient family of instruments which show great affinity to the South American inventions of similar instruments.[229] It would seem, too, that these instruments could be identified with similar Mexican pan pipes but Sachs[230] refutes this possibility.

> Except for pan-pipes and flutes, ancient South American instruments are quite similar to Mexican instruments.[231]

It is nevertheless an opinion of this writer that pan pipes, of the type found in the study area, are present in northern Mexico, considering the proximity of the two regions and due to the similar cultural phasings found in the Cienegas Basin of the State of Coahuila.

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[229]Sachs, The History of Musical Instruments, p. 197.

[230]Ibid., p. 199.

[231]Ibid.

The Role of Vocal Music

Although it is not the purpose of this paper to initiate the argument of what evolved first, vocal or instrumental music, it is nevertheless essential to discuss the presumed role of vocal music as it undoubtedly occurred within the Pecos River Focus.

According to Kunst,[232] there is no doubt that vocal music is infinitely more ancient than instrumental music. Yet, older than vocal music were the hands and feet of the human body which provided a stomping and clapping of hands as an accompaniment to the dance.[233] Undoubtedly stomping, clapping, instrumental, and vocal music existed along with the dance in many of the magic ceremonial functions of the society. This is evidenced through the pictographs in some locations; yet a tonal system for the vocal activities does not exist until a people's culture has at

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[232]Jaap Kunst, Ethnomusicology (The Hague, Netherlands: Published with the support of the Prins Bernhard Fords and the Royal Tropical Institute, Amsterdam, under the auspices of the International Folk Music Council, Martinus Nijhoff, 1959), pp. 49-50.

[233]Ibid., p. 50.

its disposal musical instruments on which tonal sequences can be produced.[234] Certainly the instruments of the study area are not capable of producing tonal sequences; so, assuming Kunst's[235] theory to be correct, the early primitives of the study area did not have a tonal system available.

Future studies of musicological materials within the area may prove Kunst's theory wrong, but at the present time it seems inconceivable that this primitive culture would be in possession of such an advanced intellectual tool as an instrument capable of producing systematic tonal sequences. In order to perceive the workings of the primitive mind, Kunst[236] states:

> We modern Westerners are able to imagine ourselves in the emotional world of the primitive mind only to a small degree; most readily, maybe, during our dreams. In the waking state, we are too analytically minded; we have become too intellectual. Being, thinking, experiencing, feeling: these are categories which we shall not easily confuse. But the primitive hardly, if at all, makes these distinctions. He lives far more subconsciously, and infinitely more from an inner unity of being. His distinction between ego and the outer world, too,

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[234] Ibid., p. 49.

[235] Ibid.

[236] Ibid., p. 50.

> is more vague; macrocosmos and microcosmos do not, as in our own case, confront him with analogies and parallelisms; they rather appear to him as identical.[237]

Essentially, the musical stature of the early primitives, both instrumentally and vocally, is in direct proportion to the cultural environment in which it resided. Presumably a metamorphosis of choice of instrument is existent from the earliest Pecos River man to the later Neo-American man, but no significant refining of their musical tools is now apparent. Many more instruments, supported by stratigraphic data, are needed from the area before a satisfactory blending of traits, both original and borrowed traits, can be determined.

It is not possible to say with certainty, however, that considering the distributional range of primitive instruments within the area, the known and problematical instruments comprise a representative group of instruments that are comparable to any archeological component in the world.

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[237] Ibid.

C H A P T E R V

SUMMARY AND CONCLUSIONS

Summary

As stated in Chapter I, it was the purpose of this study to:

1. Collect information, through the means of personal investigation of a considerable portion of the archeological sites of the Pecos River Focus.
2. Examine the literature related to the archeological and anthropological investigations within the Pecos River Focus.
3. Study the musical instruments recovered in order to determine the cultural affinities and affiliations, if any, of the Pecos River Focus.
4. Examine the pictographs and petrogliphs of the area in order to determine what, if any, implications these may have concerning the musical development of these primitive people.

Published and unpublished materials were reviewed in Chapters I and II, which provide an insight into the

present day cultural and physical environment of the area. Chapter I also explained the techniques and methods of archeological excavational procedure as well as the writer's methods and limits of reconnaisance. Chapter II contained a resume of the archological materials which are typical of the cave sites, and a view of the study area in time.

Chapter III reviewed the literature pertaining to the pictographs and petrogliphs of the region.

The study itself involved the compilation of data concerning musicological recovery within the study area over a thirty-year period (1932-1962). This material was evaluated with the assistance of numerous scholars and through the assistance of the literature related to prehistoric instruments in the Americas and in Europe. Correspondence and interviews with various experts in regard to ancient instruments afforded a means of interpreting the significance of these materials for musicology.

Conclusions

The following conclusions may be drawn from the preceding study:

Because of the quantitativeness of caves and dry rockshelters, the musicological resources of the study area are great.

Musical instruments of the study area are like those found in Mexico and throughout the Americas in archaic and paleolithic Indian excavations.

Most musical instruments recovered in the study area have come from elaborately painted caves which indicates that these sites may have been ceremonial sites in which music activities took place in various rituals.

Musicological materials appear to be more concentrated in the upper zones of the stratigraphy, which is due in part to the dry nature of the ashes and soil in these zones.

Due to the antiquity of the early phase of the Pecos River Focus there is reason to believe that the ordinarily perishable musicological materials represented here are perhaps among the oldest materials to be found anywhere on the North American continent.

Apparently the type instruments found in the caves of the area were in use for many thousands of years throughout much of the world.

Some of the primitive type instruments recovered from the study area are still used in various parts of the world among both primitives and civilized people.

More excavations are needed to acquire a vast amount of knowledge concerning the musical growth, musical cultural affinity, and musical cultural affiliation of this prehistoric component.

At present some of the musicological materials of the Pecos River Focus share certain traits of manufacture with similar materials from the Basket Maker Culture of Trans Pecos Texas although the materials appear to be of a much greater antiquity in the Pecos River Focus.

The instruments of the study area are for the most part of rather crude manufacture. Compared to the instruments of the advanced primitive cultures of Mexico, Central America, South America, and later Neo-American and historic primitive peoples of East Texas, the instruments are obviously recognized as being crude, which may or may not imply an early stage of musical development.

A curious aspect of instrument recovery within the study area is the conspicuous absence of drums which are assumed to be quite old by the layman.

Where the Pecos River Focus Indian acquired the knowledge of manufacture and use of these instruments is uncertain, but at the present time all indications point to an affinity with and a possible affiliation with the prehistoric people who inhabited the caves in the Cuatro Cienegas Basin in central Coahuila, Mexico.

Evidence of musical endeavor in the pictographs of the Pecos River Focus may be considered musicological evidence.

This study indicated that the Pecos River Focus and its musicological materials are a part of the nomenclature of a vastly low "cultural sink" which existed in the southwestern United States and northern Mexico. The study also indicated, however, that this low manifestation of cultural strata is due in part to its ancient position in time. In terms of the great clock of time for man on earth, the people of the early Pecos River Focus were recent in their occupancy of the caves and rockshelters of the area. However, regardless of this, the evolutionary stage of development for these people obviously appears to be retarded to some extent.

A contradiction to this cultural position are the pictographs that testify to a high degree of artistic

ability. Perhaps a greater amount of leisure time afforded by a compatible climate and abundant game made this art work possible. Also, the musicological evidence presented herein rather well substantiates that the primitives' society was a diversified society; one which was not only concerned with the daily problems of simply staying alive, but one which was permitted an awareness of a more gracious way of life.

B I B L I O G R A P H Y

B I B L I O G R A P H Y

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Austin, Texas

Personal interview with Dr. T. N. Campbell of the Anthropology Department, The University of Texas, July, 1962.

Numerous interviews with Dr. Francisco Curt Lange, guest lecturer in Latin American and Primitive Latin American Music, The University of Texas, summer of 1960.

Numerous discussions of the archeology of the region with E. B. Jelks of The University of Texas and the Texas Archeological Salvage Program, 1958-1962.

Interviews with Le Roy Johnson, Jr., formerly of The University of Texas, who was in charge of the excavation in 1961 at the mouth of the Devils River.

Discussions of the significance of primitive instruments with Dr. Hans Draeger of the Department of Music at The University of Texas, summer of 1962.

Discussions of the contributions of ethnomusicological studies of prehistoric archeological components with Dr. E. Mott Davis of The University of Texas.

Comstock, Texas

Numerous discussions of the archeology of the lower Pecos River with W. E. McCarson, Jr., who is regarded as the most knowledgable person concerning the quantitativeness of archeological resources in the area, 1957-1962.

Personal interview with Dr. David Gebhard of the Roswell Museum and Art Center of Roswell, New Mexico, May 12, 1960.

Numerous discussions with Dr. Jeremiah Epstein of The University of Texas during the excavation of Javelina Cave, June and August, 1959. Also during the spring of 1959 while Dr. Epstein was in the process of excavating Damp and Centipede Caves numerous discussions were carried on concerning the lithic and nonlithic materials recovered in those two caves.

Personal interviews with Dr. Carl Shuster of Woodstock, New York, concerning the pictographs of the Pecos River Focus, September 16 and 17, 1962.

Conversation with Charles R. Steen, Regional Archeologist of the National Parks Service, December 4, 1962.

Langtry, Texas

Interviews with Guy Skiles and inspection of his collection of archeological materials from the Langtry area, 1958-1960.

Mexico City, D.F.

Personal correspondence with Dr. Vicente T. Mendoza of the National Museum (Museo Nacional), September, 1962.

Monterrey, Mexico

Interview with the curator of the Museum of The Bishop's Palace, June, 1958.

A P P E N D I X

I

CURRENT ARCHEOLOGICAL ACTIVITIES IN THE STUDY AREA

In September, 1962, the Texas Archeological Salvage Program began excavational and extensive reconnaisance within the Amistad region. Under the direct supervision of E. B. Jelks, a major excavation of Coon-tail Spin Cave(VV82) was undertaken as well as a series of minor test excavations and explorations.

At the major excavation site, which yielded several early man type dart points in the initial testing by the writer in 1960, the cultural material thus far removed shows indications of being of exceptional value in the evaluation of the area's archeological potential. So far there has not been any material removed that would suggest a late occupational horizon at this cave. No arrow points or other lithic artifacts of the Neo-American phase are present and are not anticipated by the field crew. It appears at the present time that this site may be the earliest cave site yet to be excavated in the area.

Of outstanding musicological significance is the recovery of a reed flute from the upper zones at this site

in the initial excavational procedure. This flute has not been seen by the writer, but an accurate account of its recovery and a detailed description of the instrument was given to the writer by the field archeologist in charge. At present, the only other musical instrument recovered from this site was a badly fragmented gourd rattle which is reported in the main body of this paper.

Other artifacts which are rarely found that have been recovered in this excavation are clay figurines that are quite realistic psuedo anthropomorphic representations of the human female body. These specimens are moulded clay figurines rather than the sculptured type. One specimen observed by the writer is rather elaborately decorated with a geometric design which has been incised and "pecked" into the abdominal and thoracic regions of the figurine.

In Mosquito Cave, one of many sites overlooked in the 1958 survey, a folsom point was recovered just recently. This point is the first to be found in a dry cave or shelter within the area. However, it was found in association with typical archaic dart points which indicates that the specimen is undoubtedly intrusive. Folsom points are frequently found in association with the bones of extinct bison, mammoth, mastodon, and camel. It seems at

the present time that regardless of the intrusive nature of the specimen, it was undoubtedly manufactured within the area, probably at another cave site that has not yet been discovered.

II

SAMPLE FORMS UTILIZED BY THE UNIVERSITY OF TEXAS, TEXAS ARCHEOLOGICAL SALVAGE PROGRAM, AND OTHER AGENCIES IN THE STUDY AREA

Eleven sample forms used by various agencies in the compilation of data

ARCHAEOLOGICAL SURVEY RECORD

PICTOGRAPHS

1. STATE_____ 2. COUNTY_____ 3. TWP_____ 4. RANGE_____

5. SECT._____ 6. AREA_____ 7. PS NO._____

8. LOCATION_____

_____

9. SITE DESCRIPTION_____

10. RELATION TO OTHER PICTOGRAPH SITES _____

_____

11. RELATION TO OTHER ARCHAEOLOGICAL SITES _____

_____

12. SURFACE UTILIZED IN THE PAINTING _____

13. WEATHERING _____

14. POSSIBLE TYPES REPRESENTED_____

15. COLORS AND TECHNIQUE _____

_____

16. MEASUREMENT OF PANELS _____

17. FIGURES REPRESENTED:

HUMAN_____
ANIMAL_____
PLANTS_____
GEOMETRIC_____
OTHER_____
QUESTIONABLE_____
NOTES ON ABOVE_____

_____

18. POSSIBLE SUPERIMPOSITIONS _____

_____

19. VANDALISM_____

20. ADDITIONAL GENERAL NOTES_____

_____

ARCHAEOLOGICAL SURVEY RECORD

PICTOGRAPHS (CONTINUED)

21. RECORD:

PHOTOGRAPHIC_____

SKETCHES _____

ADDITIONAL NOTES _____

PUBLISHED REFERENCES_____

22. RECORDED BY_____ 24. DATE _____

FIELD PHOTOGRAPH RECORD, RIVER BASIN SURVEYS, N.P.S.

Type of film_____ Year_____

Field No.	Date	Camera Settings	description and directions

FEATURE FORM

Archeology Field Course
Department of Anthropology
University of Texas

SITE_____

RECORD NO._____

FEATURE NO._____ UNIT WITHIN SITE_____

NATURE AND DEFINITION OF FEATURE:_____

LOCATION WITHIN THE GRID:_____

ELEVATION_____

MEASUREMENTS: MAXIMUM LENGTH_____ DIRECTION_____

MAXIMUM WIDTH_____ DIRECTION_____

DEPTH_____

STRATIGRAPHIC POSITION:

ASSOCIATED ARTIFACTS OR FEATURES:

DESCRIPTIVE NOTES & REMARKS:

EXPOSED BY_____

PHOTOS_____ MAP OR SKETCH_____

REF.:_____ RECORDED BY_____ DATE_____

SUPERVISOR'S APPROVAL_____

RESERVOIR_____, COUNTY_____, STATE_____

SITE_____, BURIAL NO._____

BURIAL REPORT FORM, RIVER BASIN SURVEYS, N.P.S.

GRAV. DESCRIPTION

Horizontal location_____

Vertical location_____

Orientation_____

Dimensions_____

Grave fill_____

Stratigraphic position_____

DESCRIPTION OF SKELETON

Location in grave_____

Position_____

Orientation_____

Dimensions_____

Members present_____

Condition of bones_____

Age group _____, Sex_____

ASSOCIATED OBJECTS_____

RELATED FEATURES_____

REMARKS_____

REFERENCES: PHOTOS_____, SKETCHES_____, PLANE TABLE SHEETS_____

WORKED BY_____ RECORDED BY_____ DATE_____

LEVEL REPORT

Archeology Field Course
Department of Anthropology
University of Texas

SITE_____

RECORD NO._____

SQUARE_____ LEVEL_____

DATE STARTED_____ DATE FINISHED_____

DEPTH TO FLOOR AT S.E. STAKE_____ SCREENED?_____ SCREEN MESH SIZE_____

FLOOR TROWELED OR CHECKED FOR FEATURES?_____

WALL TROWELED OR CHECKED FOR FEATURES?_____

FEATURES PRESENT OR INDICATED:

NATURE OF SOIL_____ SOIL SAMPLE_____

ARTIFACTS RECOVERED:

NO. OF SPECIMEN SACKS:

DEBRIS RECOVERED OTHER THAN ARTIFACTS:

REMARKS:

EXCAVATED BY_____

REF.:_____ RECORDED BY_____ DATE_____

SUPERVISOR'S APPROVAL_____

SQUARE REPORT

Archeology Field Course
Department of Anthropology
University of Texas

SITE_____

RECORD NO._____

SQUARE_____

ELEV. OF SURFACE AT CORNERS: N.E._____ S.E._____ S.W._____ N.W._____

ELEV. OF FLOOR_____

NUMBER OF LEVELS EXCAVATED:_____

FEATURES FOUND WITHIN THE SQUARE:

FEATURES INDICATED ON THE FLOOR:

FEATURES INDICATED ON THE PROFILES:

RECORDING OF PROFILES (CHECK IF TAKEN): N_____ S_____ E_____ W_____

SUMMARY REMARKS & DATA CONCERNING THE SQUARE:

REF.:_____ RECORDED BY_____ DATE_____

SUPERVISOR'S APPROVAL:_____

SITE SURVEY Department of Anthropology, University of Texas

County:__________ State:__________ Site no.__________

Name of site:__________ Record no.__________

1. Map reference:
2. Other names for site:
3. Location:
4. Owner's name, address:
5. Tenant's name, address:
6. Informants:
7. Previous owners:
8. Attitude toward investigation:
9. Site description, position, surrounding terrain, vegetation:
10. Relation to water supply:
11. Size and limits of site:
12. Depth and character of fill:
13. Present condition:
14. Previous investigations:
15. Handicaps to excavation:
16. Work done by survey:
17. Material collected by survey:
18. Material observed:
19. Material reported and owner:
20. Maps of site:
21. Recommendations, remarks:
22. References:
23. Photo ref.:__________ Recorded by:__________ Date:__________

University of Texas
Dept. Anthropology

FIELD PHOTO RECORD

Camera:

Film size & type:__________ Year:____ Lot#__________

Site No.	Ser.	Exp. No.	By	Date (Time)	Direction	Description

The University of Texas, Department of Anthropology

Site_____

GENERAL RECORD FORM

Record No._____

Area____ Excavation_____ Level_____

1. Subject_____

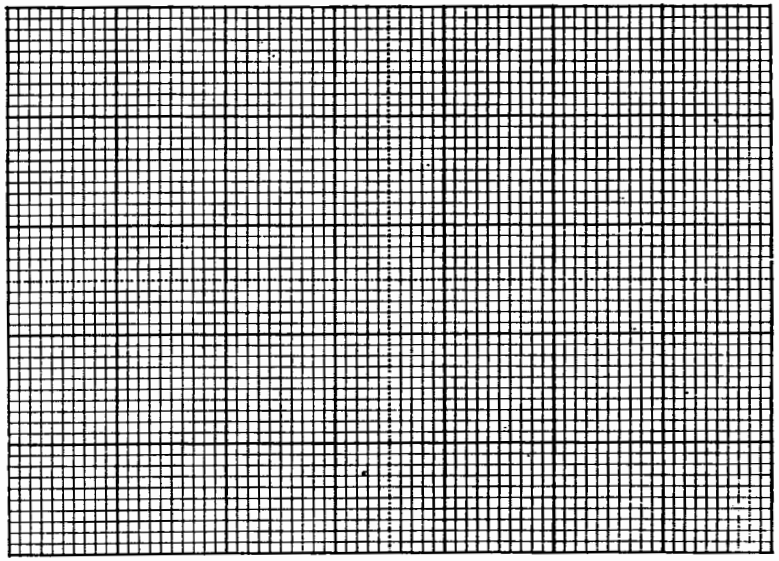
2. Horizontal location_____

3. Vertical location, strat. position_____

4. Dimensions_____

5. Associations, matrix_____

6. Description, discussion, sketch_____



Scale_____ Title_____

Worked by, using_____

Disposal of specimens_____

Reference_____

Photos_____ Recorded by_____ Date_____

The University of Texas, Department of Anthropology

Site_____

BURIAL RECORD

Record No._____

Subject:_____

Horizontal location:_____

Skull elev.:_____ From surface:_____ Pelvis elev.:_____ From surface:_____

Stratigraphic relationships:_____

Evidence of being intrusive:_____

Grave fill:_____

Fill into which grave was dug:_____

Grave dimensions:_____

Type of burial:_____ Preservation:_____

Position of skeleton:_____

Orientation:_____ Direction of skull:_____ Facing:_____

Postmuseum shifting of bones:_____

Bones absent (or present):_____

Age:_____ Sex:_____ Pathology:_____

Associated objects (items):_____

Remarks:_____

Exposed by:_____

Disposal of specimens:_____

Cat. nos.:_____

References:_____

Photo ref.:_____ Recorded by:_____ Date:_____

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